THE BUSINESS QUARTERLY

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Price Control

A Symposium

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A Practical Application of Statistical Quality Control
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WHO'S WHO IN THIS ISSUE

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Mr. Gillies graduated in Honour Economics and Political Science from the University of Western Ontario in 1946. He was awarded a scholarship at Brown University, where he did graduate work in economics and received his Master's degree. He then worked for a year with Central Mortgage and Housing Corporation in Ottawa. Following this, he received a fellowship and continued his graduate work at Indiana University, where he completed the requirements for his Ph.D. He is now a member of the staff in the Department of Economics, School of Business, University of California, Los Angeles.

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Mr. Knapp graduated in Mechanical Engineering from the University of Toronto in 1934 and is a member of the Association of Professional Engineers of Ontario. After working in automotive and related industries in Ingersoll and Tilbury, he joined the Engineering Division of Ford Motor Company in Windsor in 1937. He went overseas in 1942 as a Civilian Technician in the Directorate of Design of Equipment and Mechanization at Canadian Military Headquarters, London, England. After serving in this capacity for 28 months, he was recalled by Ford to supervise its Airportable and Airborne programme and was transferred from Engineering to Production in 1946 to initiate the Statistical Quality Control Programme. He is now Superintendent of Quality Control for the Company.

Mr. Knapp is President for the year 1951-52 of the Michigan Section of the American Society for Quality Control and is a member of the University of Western Ontario Section.

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Mr. Wettlaufer, a former member of the staff of the School of Business Administration, University of Western Ontario, graduated from Western in Business and last year completed the requirements for his M.B.A. degree. His article was especially adapted for *The Quarterly* from his Master's thesis. The survey was organized in the following sections:

Part I: Results of the First Questionnaire Are Discouraging.

Part II: Testing the Socio-Economic Plant Tour as a Teaching Medium.

Part III: The Socio-Economic Plant Tour Endorsed by the Findings of the Second Study.

The final section appears in this issue.

BOOK AND ARTICLE REVIEWERS

Messrs. Ready and Fox are members of the faculty of Western's School of Business Administration; Mr. Hillary is Manager of the Main Branch, Royal Bank of Canada, London, Ontario.

Price Control

A Symposium by Eleven Spokesmen for the Interests Concerned

At the present time, few subjects are as timely as that of price control, and we feel that a discussion of the attitudes with regard to this topic of those comprising the various sections of the Canadian economy should prove not only interesting but also thought-provoking and concretely helpful to our readers. The Hon. D. C. Abbott, Minister of Finance, introduces the subject by outlining Government policy. His comments are followed by statements by Mr. George A. Drew, Mr. M. J. Coldwell, Mr. Solon E. Low, Mrs. W. R. Walton, Jr., Mr. A. R. Mosher, Mr. Percy R. Bengough, Dr. H. H. Hannam, Mr. E. F. K. Nelson, Mr. Hugh Crombie, and Mr. Francis G. Winspear.

Government Policy Outlined

by the Hon. D. C. Abbott
Minister of Finance

The outbreak of war in Korea led to a very large increase in our expenditure for military preparedness. Here in Canada, as throughout a large part of the world, this new demand upon our capacity revived the danger of rapid inflation. Following a period of eighteen months of relative price stability, the past year has produced another sharp rise in prices. In this situation, the Government has avoided the direct control of prices as an anti-inflationary device. This is not to say that the Government has failed to recognize the strength and persistence of inflationary forces and the necessity of containing them, or that it has not taken steps which are more powerful deterrents to price increases than the imposition of direct price control. We have, however, placed our main reliance on anti-inflationary measures which get at the causes of inflation rather than on price fixing by Government edict. A good physician knows that he does not eliminate the menace of a disease by relieving the pain or discomfort of a symptom.

Reasons for Shunning Controls

There are several reasons for the Government's attitude towards the applicability of direct price control in the present situation. One involves the very large part which foreign trade plays in Canadian life. A second involves the indefinite duration of this period of international uncertainty and mistrust. A third follows from the irksomeness of price regulations and from the social waste and the danger to free institutions and human initiative which they entail. Associated with this third objection is the undoubted fact that price control is ineffective except to the extent that it is backed by fundamental methods of control which involve correction of underlying causes. It is necessary to examine somewhat more closely how these factors limit the usefulness of direct price control in this country at this time.

Canada is, and has been for a long time, a trading nation. Our exports and imports each amount to more than one-fifth of our gross national expenditure. As far as export commodities are concerned, the domestic price is to a large extent set by the price which foreigners are willing to pay. As far as imports are concerned, Canadians also buy in competition with other countries, and if the price of imported goods goes up, this will be reflected in our price level. Thus for a very large proportion of the goods consumed by Canadians, the price directly reflects the world price and is to a large extent beyond our control.

If we wish to do something about the high prices of goods which enter into our export trade, we must limit the freedom of producers to export. Similarly, if we wish to do something about the high price of imported goods, we would need to subsidize their importation. Such actions have international and domestic implications which make them unattractive and even impracticable alternatives to a free pricing system. Both involve a redistribution of income. In the one case, particular producer groups suffer a reduction of income; in the other, the redistribution is effected through the tax system.

The fact that we do not know the length of time over which present conditions will apply is an equally fundamental reason for avoiding the rigidities involved in a direct freeze of prices. It is obvious that the price relationships which exist in our economy are subject to continuing adjustment. This follows from the shifts in demand and supply which reflect the influence of a multitude of factors such as changes in tastes, technology, and climatic conditions. Under a free pricing system, these inevitable changes in demand and supply are reflected in changes in market prices. It is clear, therefore, that the longer the period for which it is attempted to freeze prices, the further they may get out of line. Even with the tightest of controls and the strictest enforcement, there is a limit to the extent to which artificial prices can be forced on the community.

Producers will not, for example, produce at a loss indefinitely. Such difficulties lead to exceptions and adjustments although the essence of effective price control is that exceptions should almost never be made. Thus for long periods or for periods of indefinite duration, direct price control has serious limitations. The hardships and inequities which it involves increase with the passage of time as does the possibility of harm to incentives. For those who emphasize the hardships and inequities of rising prices, it should be remembered that these are also a very real attribute of an effective system of direct price control.

The regulations which were necessary during the last war to ensure the maintenance of price ceilings were extremely onerous. The enforcement of these regulations required then, and would require now, an army of civil servants. To the social waste involved in using scarce manpower resources to administer and enforce the regulations must be added the endless wastage of the time of private individuals in interpreting and complying with the regulations, or in seeking to evade them. Thus the restriction of the freedom of the individual is not only a danger to our free institutions but a constant threat to our productive efficiency. All the while the sphere in which the individual makes and assumes responsibility for his decisions dwindles—an unfortunate tendency in a democratic society.

Further Involvements of Price Control

It has been stated above that price fixing of itself does nothing to correct the fundamental imbalance between demand and supply. Without such correction, evasion is a constant threat and black markets a logical development. Since the demand side cannot be thus ignored, price control must be accompanied by wage and profit control. Moreover, it was noted in speaking of imported and exported goods that price control in this sphere involves subsidies. Subsidies are likewise involved for certain domestic goods where a price freeze means that supply will dry up. The effect of these subsidies is to make such goods artificially cheap in relation to other goods and thus to reduce the adequacy of their supply to a point where rationing may be necessary. It is easy to forget not only the severity of price controls during the last war, but also the extent to which they led to and were supported by other direct controls through rationing, priorities, allocations, wage control, and direction of manpower. It is equally easy to forget the strength and severity of indirect controls during that period—the heavy taxation, the restriction of consumer credit, and the intensive savings campaigns.

Alternative Government Action

The defence effort which we are called upon to make in Canada today amounts to about 10% of our total production. Canadian anti-

inflationary measures seem realistic and adequate when viewed in relation to the size of this task. These measures include the continuation of a strict-pay-as-we-go system of government finance with taxes aimed at reducing both incomes and spending; they include restriction of consumer credit, an increase in official interest rates, the encouragement of savings, and the concerted effort of the chartered banks to prevent a further expansion in the aggregate volume of bank loans. Less essential forms of capital investment are being discouraged by postponement of the right to charge depreciation on such projects for income tax purposes. On the direct side, priorities have been established relating to the use of steel, base metals, certain chemicals, and pulp and paper. More recently the Government has announced its intention to outlaw resale price maintenance so that competitive influences may work unhampered. There is evidence that the combined effect of these measures has been considerable.

The present anti-inflationary measures are designed in terms of a defence effort which may be necessary for many years to come. It has been pointed out that the need for adjustment of any price ceiling increases with the passage of time. Price ceilings may be rigorously enforced for a limited period of time if they are supported by other severe direct measures and by indirect measures aimed at the elimination of underlying causes. In such cases, the price ceiling is not the primary instrument of control but serves to protect and reinforce and support more fundamental measures of fiscal and monetary policy. There may again come a time of dire national emergency when hardship and sacrifice are the order of the day, when the demands of defence are so extravagant as to be quite beyond the practicable limits of taxation, when pressures are in consequence so severe that every last measure of direct control will be required. Under such circumstances, the regimentation of our population and the temporary surrender of a large measure of our personal liberty can be justified. That time is not yet.

Some Control Necessary

by George A. Drew
Leader of the Opposition

There is no mystery about what has happened to the cost of living in Canada. Once it becomes necessary to divert a considerable part of the national resources into armaments and military equipment, the danger of inflation threatens the savings and the buying power of every individual. No other form of production has a similar effect. The reason

for that is very clear. Weapons, military equipment, fighting aircraft, and naval vessels satisfy no civilian demand. The money spent on them, as well as the very large sums spent on the training and pay of the military forces themselves, must all be added to what is required for the daily needs of our people.

Metal, wood, textiles, chemicals, food, and many of the materials that go into the making of things that we have come to regard as necessities, are withdrawn from ordinary competitive supply. This happens at a time when full employment at high average dollar levels sends too many dollars chasing too few goods. Thus prices soar.

That is exactly what the housewife, the pensioner, old people who are retired and living on their own savings, as well as young couples building and furnishing their own homes, are all feeling so severely at this time. What is alarming, and what is worrying those who are already feeling the pinch, is that the huge expenditures which are to be made this year and in the following years have not yet even started on a large scale, and the heaviest inflationary pressures are, therefore, still to come.

We have been urging the Government to act for some time. We will continue to do so. We introduced a motion in the House of Commons more than a year ago emphasizing the need for dealing immediately with the increased cost of living and the inflation of our dollar which was causing it. The Government and its supporters voted against our motion.

Government Inaction Hits Fixed Income Recipients

The Government, therefore, is primarily responsible for the extent to which inflation has got out of control. What is important, now, however, is that the Government act without delay to ease the very real hardship being suffered by hundreds of thousands of Canadians. The cruel and all too obvious fact is that inflation hits those who are least able to meet it. Already the situation is really desperate for those who are living on pensions or small fixed incomes, which were barely adequate ten years ago. The same number of dollars reduced to half their value simply will not buy the bare necessities of decent subsistence.

Just let anyone who questions the need for immediate and drastic action sit down with a pencil and paper and figure out the minimum requirements for food, rent, clothing, and fuel at present levels, and then find out how these can be purchased with the pensions that are being paid. This applies with equal force to veterans, to railway and other retired workers who received fixed pensions after long years of service, and also to those who thought they had saved enough during

long years of work to keep them in simple comfort during their declining years.

I am well aware that inflation here has not wiped out all savings as it did in Germany, in Russia, and in those countries which completely debased their currency. I am aware that it has in no way reached a point that approaches the disastrous inflation in France or Italy. I have seen the consequences of the inflation in those countries. It is because I don't want anything of that kind to happen here that I am urging the most vigorous action while the savings of our people in the form of insurance, bank deposits, government bonds, mortgages, and all those investments which have been properly regarded by our people as the safest form of investment for their old age, have not yet been reduced to a point where the security for which they planned for so many years will disappear. We have already gone much too far along that dangerous road in a country which has greater opportunity to protect the value of its currency than any other country in the world.

Recommendations to Ease Inflation

There are a number of things that we have urged the Government to do:

(1) Substantially reduce all non-defence expenditures by the Government.

(2) Encourage the production of every line of civilian requirement so that increased production of these things may ease the strain and pressures which cause inflation.

(3) Encourage immigration which will bring to our country vigorous people with the skill and character which will make them useful members of the Canadian community.

(4) Remove all restrictions which will discourage the building of new houses urgently needed for the steady increase of population by our own normal growth and by immigration.

(5) Take effective steps to make sure that we get full value for every dollar spent on defence.

(6) Restrain inflation through the control of currency by the Bank of Canada.

(7) Introduce emergency controls immediately to the extent that they are required to deal effectively with the cost of living and inflation.

Because inflation is so largely the result of abnormal Government spending on defence and the consequent withdrawal of supplies for that purpose from ordinary use, the first and most far-reaching step which can be taken is for the Government to reduce drastically its non-defence

spending. That can and must be done. To a considerable extent, the other points speak for themselves. Immigration of the right type will give us the additional manpower we are going to need. The whole free world requires things that we can produce. We can and must expand our production. Immigration will not only make that possible. It will also mean that our financial burdens will be carried by that many more people in the years ahead. This emphasizes the need for encouraging housing. Surely the initiative and imagination of a young and vigorous country is capable of employing new methods of construction which take advantage of the advances in the use of plastics, plywoods, and other building materials of new design.

Controls in Particular are Essential

That brings me to the subject of controls. There are those who contend, with the utmost sincerity, that any price, rent, or similar controls should be avoided at all costs. In normal times, when there is no interference with production or diversion of raw materials and supplies by the Government, I am convinced that controls have no place in a free economy and that they discourage the full employment of the resources of a rapidly developing nation like Canada. I am equally convinced, however, that a situation has arisen which makes it absolutely necessary for the application of emergency controls if confidence in our free economy is to be preserved.

To suggest that the public will be protected by the free movement of prices under the laws of supply and demand is simply dodging reality at this time. Buying for defence purposes and other segregation of essential materials is limiting the amount of those materials and supplies available for ordinary civilian needs and in that way creating an artificial demand which carries prices up to points far beyond their reasonable level.

If there is one thing that is particularly repugnant to the minds of those who are called upon to make some sacrifice for the defence of freedom now or at any other time, it is the thought that anyone is in a position to gain advantage from the unhappy circumstances which are demanding deprivation and sacrifice from others.

Speaking in the House of Commons, I said:

> "I believe in a free economy; and I believe that one of the great issues before us in the years ahead will be whether we can preserve that free economy in the face of the threat with which this and every other free nation is confronted."

I then went on to express my own belief that emergency controls are necessary now and not at some future date if our free economy is to be

protected. I urged the immediate introduction of such emergency controls as will be effective in holding down the cost of living and turning back the tide of inflation. I have not at any time suggested, and on the contrary I would argue very strongly against, the introduction of controls on the same scale and to the same extent as became necessary during the last war. We are not yet confronted with the same situation. If general war is avoided, and I am convinced it can be, and if the combined efforts of the free nations are sufficiently prompt, vigorous, and effective, then it does not seem likely that we will need anything like the degree of control which was necessary during the last war or which would be necessary if, contrary to all our hopes, we should ever become engaged in another general war.

Controls of this kind need to be permanent, even for the duration of the period of military preparedness which may extend for many years. Long before we return to the days of settled peace, for which all of us still confidently hope, it would be possible to remove or reduce these controls to the extent that we extend production of foodstuffs, clothing, fuel, and housing requirements, as most certainly can be done in this fortunate country of ours.

Further Inflation by Invitation

One of the great difficulties with which every Canadian is confronted today is that no one has the slightest idea yet what the Government intends to do. In addition to that measure of inflation which has resulted from ordinary pressures, we have had inflation by invitation. At the time that the Government introduced its emergency measure last September, it was explained that this would make it possible, and I use their own words, "to avoid runaway inflation with its distortions of the wage and price structure and the unrest it brings in its wake". Those who were selling were, in effect, invited to prepare themselves by raising prices.

Having done absolutely nothing to deal with inflation under that Act, the Government later introduced a new measure known as the Emergency Powers Bill. We were told that if controls became necessary, they would be dealt with under this new measure, but the Bill says nothing about price controls or any other controls. The Government has simply received another blank cheque, without any assurance that it will be used, to deal with this desperately urgent situation. Once again there has been an invitation to raise prices. It is against such a situation that we advocate such selective flexible controls as will hold the lines upon which we can defend our free economy until production catches up with increased demands.

Negative Effects of Present Programme

by M. J. Coldwell
National Leader
Co-operative Commonwealth Federation

Canada is today faced with a major problem, inflation, and with all the dire consequences which attend it. The demands made by the new rearmament programme are partly responsible. Unless this problem is carefully dealt with, it is likely to become more dangerous, for as our defence programme develops momentum, the strain on our economy will increase accordingly.

When we began the present defence project early this year, our factories were employed to capacity, and there was a shortage of labour. The removal of controls and subsidies, which had worked adequately during the recent war, the abolition of the excess profits tax, and the soaring profits of industry have all contributed to inflated prices. On the other hand, increases in wages and in farm prices have failed to keep pace with rising costs of living and of agricultural production.

Policies Recommended to Curb Inflation

Realizing that inflation, if permitted to continue unchecked, would have a dangerous effect on our economy and on the morale of our people, we of the CCF took the stand that the Government should stabilize prices by means of wisely administered price controls; that subsidies should be implemented for the twofold purpose of rolling back existent inflated prices on basic commodities and of assisting producers whose costs of production have risen through no fault of their own; that an excess profits tax should be imposed which would not only aid directly in curbing inflation but also assist in the payment of necessary subsidies.

The experiences of the war prove, I believe, the validity of our case. When Canada was engaged in an out-and-out conflict, the cost of living index rose by no more than 4.1 points between December, 1941, and February, 1946, when appropriate price controls and subsidies were in effect. Since the beginning of the Korean war, which has engaged only a small portion of our resources in comparison with that which was needed to combat the enemy in World War II, the index has already risen 22.3 points.

Effects of Inflation

While mathematical computations are quite helpful in illustrating the serious proportion which this inflationary trend has assumed, the most meaningful way of measuring it is by examining its effect on the

great majority of Canadian consumers. Many are being literally rationed out of the market as a result of uncontrolled prices.

Again, uncontrolled prices are reflected in the continually increasing cost of our defence programme. The Canadian people are not getting their full value in return for the taxes imposed upon them. The proposed expenditure of 1.6 billion dollars for this fiscal year on defence will have a comparatively low yield, because our dollar has become so highly inflated. In addition to the intolerable burden which inflation imposes on a large number of Canadians, I personally believe that if we are to maintain wholehearted public support for essential preparations for defence, this burden must be eased without any further delay.

Government Policy

What has the Government offered as an alternative to our programme? It has adopted, instead, a fiscal policy largely comprising increased direct and indirect taxes. While we recognize that ways and means to finance the preparedness programme must largely stem from taxes, we do not believe that increased taxes are the best solution against inflation.

On the contrary, tax increases, such as that which was recently effected in the sales tax, actually stimulate rather than check inflation. The imposition of this tax at the manufacturer's level causes it to pyramid with each successive dealer's markup until it reaches the consumer, who must pay the cumulative price. In addition, this and other increased taxes precipitate a rise in the cost of living which in turn justifies wage earners' demands for increased wages in order to maintain a decent standard of living for their families.

The Government has also imposed severe consumer credit restrictions in order to effect a reduction in consumption. This policy has proved negative, forcing some plants, particularly in the automobile industry, almost to shut down. As matters presently stand, too many plants have been affected by these consumer restrictions, while their plant capacity has not been utilized for defence purposes. Recent mass layoffs, especially in the Windsor area, indicate only too clearly the negative implications of this policy.

While CCF policy fully supports the view that defence orders should have priority over consumer demands, it also prescribes that the restriction in the production of consumer goods would not prove necessary as an anti-inflationary measure if the policy we have recommended were effected. Indeed, this credit restriction policy, like the fiscal measures, has proved regressive in that it has actually helped stimulate inflation by increasing the gap between demand and supply.

Need for a More Effective Policy

If our purpose must be, as I firmly believe, to provide our country with the necessary degree of defence and at the same time to ensure that we maintain a reasonable standard of living during the emergency, then we must formulate our policy accordingly. Failure to attain this objective is to imperil the outcome of our struggle with international communism. The present Government policy so far has, in my opinion, been ineffective in promoting this twofold objective, as shown not only by the high cost of living, but also by unnecessary economic dislocations. Unless the Government is willing to undertake a more positive programme, such as that which the CCF has outlined, we shall be unable to meet the obligations forced upon us by the international situation.

Revised Policy Advocated

by Solon E. Low
National Leader
Social Credit Party

In reality the Liberal Government has had no price control policy. They did adopt some "fiscal measures to combat inflation", but these have been a colossal failure insofar as controlling prices is concerned. Since Mr. Abbott announced the first of these "fiscal" measures last December, the cost of living has boomed up no less than 18.7 points on the index. That ought to be evidence enough that the Government's "fiscal measures" have failed utterly to check the steady rise in consumer prices, much less to bring prices under control.

Government Policy Stimulates Price Rises

Another fact that stands out is this: certain aspects of the Government's anti-inflation programme have contributed directly to *higher* consumer prices and the *highest* cost of living index in our history. A case in point is Mr. Abbott's "commodity taxes". This is just a genteel name for hidden taxes such as the sales tax and the excise tax. By applying these taxes at the manufacturer's level, the Government not only pushed prices up; they pyramided them. The net effect of the 10% sales tax is that consumers must pay up to 60% more in taxes than would be necessary if the same rate of tax were applied at the retail level. All of this enters into consumer price. A look at the progressive rise in the index shows that immediately after the introduction of the 1951 budget and during the months of May, June, and July, when the budget measures

were applied to the Canadian economy, the cost of living index rose by seven points. The excise tax increases and the 25% increase in the sales tax provided the main pressure for the price rise during these months.

Economic authorities agree that taxation, unaccompanied by subsidies, and perhaps rationing, cannot possibly check price rises under circumstances such as those prevailing in Canada. This was drawn to Mr. Abbott's attention during the budget debate by Social Credit speakers, but he persisted in putting his whole trust in his taxation and credit restriction measures, to the discomfiture and suffering of many thousands of Canadians.

Another budget provision which has contributed to the increased cost of living since last spring is the unabated corporation income tax increase. Mr. Abbott was warned that if an abatement provision were not provided for those corporations classified as utilities, such as railways, telephone companies, and power companies, they would be forced to apply for increased rates. To Mr. Abbott's failure to keep his promise to insert into his budget bills such an abatement clause can be traced the reason why immediately after the budget was passed through parliament, many utility companies *did* apply for higher rates. The railways were granted an increase of 12% in their freight rates, which of course contributed to price increases all over the country.

It can also be said with perfect truth that the Government's failure to adopt an effective policy governing investment and expansion and development has contributed to the steady rise in prices. Much of the expansion and development in Canadian industry and resources during the past three years has had about the same effect upon prices as war. Wherever huge profits are ploughed back into plant expansion without bringing soon an increase in consumer goods available to the people of Canada, inflationary pressures are set up which inevitably push up the cost of living. The Government has left this field almost entirely free from any control or regulation or direction.

Government Excuses

The Government tries to excuse its inaction by saying the present price situation is a world-wide phenomenon. Up until late spring some of our Cabinet Ministers blamed high Canadian prices on those in the United States. That ground has largely been cut out from under them because the cost of living in Canada has for some months been considerably higher than in the United States. Moreover, the Government claims that this is not the time to apply a system of direct price controls. They say it would have to be an overall system, including wage controls; and even such a comprehensive system would not work now.

Social Credit Recommendations

We Social Crediters are convinced that a system of overall, direct price controls, with all the regimentation and restrictions it entails, is the very negation of the democratic way of life.

We further believe that as long as Canada continues to participate in the numerous international organizations to which she is now committed, such as the North Atlantic Treaty Organization, Bretton Woods, the United Nations, the Colombo Plan, etc., the cream of Canadian production is likely to be given away externally, leaving in our country effective demand for which there is no balancing supply of consumer goods. In that circumstance, pressures for price rises are inevitable. It is our conviction, too, that as long as we continue to operate under the present financial and economic system, this country cannot maintain a condition of full employment even in peacetime without some price control arrangements. Until proper financial and economic reforms are established in Canada to take care of the situation on a long term basis, it may be necessary to adopt certain direct price controls. We would support such a temporary measure to bring our people relief from the present terrific high cost of living.

There are other perfectly scientific and economically sound things the Government can do to ease the cost of living burden and bring relief to millions of Canadians. We strongly advocate the following measures:

1. *Overhaul the taxation structure.* Abolish or reduce in rate those taxes which are found to pyramid consumer prices. Particularly we advocate removal of the sales tax, abatement in income taxes on public utility corporations, and reform of the fiendish income tax enforcement policy as it has been applied to Western farmers. Wherever any tax policy is found to discourage all-out productive effort, it should be revised to remove the discouragement.

2. Hold out every possible inducement to all sections of Canadian society to increase their productive efforts. We believe the greatest single factor in bringing down the general price level is a plentious supply of consumer goods for home consumption.

3. Couple with a wise taxation policy, a system of consumer price discounts or subsidies on selected items which enter into the daily needs of the majority of Canadian people. There is no excuse whatever for the Government's failure to use some of its tax revenue thus to reduce prices through subsidized price discount, at least on some items that have to be bought by the people from day to day. Especially is this true now when the Government is confiscating by taxation much more money than it requires for its defence programme and the maintenance of service to the people.

4. Whenever it becomes necessary to expand the money supply of Canada, the Government should not add to the debt burden on the people by borrowing from the chartered banks. Rather, it should ask its own Treasury and the Bank of Canada to create and hand over the new supply of purchasing power, interest free, to be spent into circulation by the Government for the essential needs of the situation.

5. A wise investment policy governing industrial expansion and the resources development should be adopted. The immediate effect of capital plant and resources development is exactly the same as war. It diverts materials and power from ordinary consumers and raises either prices or taxes or both. Some projects give consumer goods returns within a relatively short time, while others are likely to be of use only to our descendents. There is a reasonable rate at which development should be undertaken. Some specific policy must now be laid down governing future development programmes. Development should only be authorized after a proper analysis of its purpose and cost has been made and it has been determined that one of its results will be an early reduction in the general price level, at least until that level has been brought down to or near the 1939 level.

6. Anti-combine legislation should be strengthened and effectively enforced so as to ensure a full measure of economic competition in Canada.

Partial Lack of Government Action

by Dorothy L. Walton
National President
Canadian Association of Consumers

Today inflation and high living costs are world-wide. This condition, caused by war and post-war failures to produce enough for the world's use, has been aggravated by defence efforts. Inadequacy of supply relative to demand is at the bottom of abnormal price increases on a world scale, and Canada, as part of the world, dependent on exports and imports to and from other free countries with as high and even higher inflation, is caught in the inflationary current.

By herself, Canada cannot hope to entirely halt inflation within her own boundaries because she is not self-contained. In fact, with more than one-third of her national income derived from foreign trade, her domestic prices are influenced more by forces outside her boundaries than by any other single factor.

Complete Control if Any Control

The Board of Directors of the Canadian Association of Consumers has not felt that the imposition of over-all price controls will cure inflation in Canada. Nevertheless, should circumstances make it necessary to institute any kind of control on prices, C.A.C. believes that controls must be placed on *all* the ingredients that influence the price of products, including wages and salaries, which form an important part of such ingredients.

Indirect Deflationary Methods

However, there are some steps which can be taken within a country which will or should have a slowing-up or even a deflationary effect on high prices.

The Government has already instituted some of these through *indirect* controls of a monetary and fiscal nature. These have aimed at curbing consumer purchasing power and capital expansion with the hope that demand would be kept under control long enough to give prices a chance to stabilize. This treatment is necessarily slow in its reaction and it is too early to fully appraise results, although there are indications already that it has started to work.

Criticism of Existing Programme

The Canadian Association of Consumers commends the Government for most of the steps it has taken, but is critical of its lack of action along certain lines:

(1) insufficient action to curb Government spending, which is just as much an inflationary influence as private spending. Surely the first 'must' in a really useful anti-inflationary programme is a reduction in the Government's 'normal' spending and a curtailment rather than expansion of future expenditures in this category.

(2) failure of the Government to show *early enough* how its policy to curb inflation *could* work and why it thought the methods chosen were better than price control with its resulting regimentation of the Canadian economy.

(3) Should the failure to drive home to the public the fact that the success or failure of the Government policy to curb inflation would depend upon the willingness of all sectors of the Canadian people to act rationally and with restraint in their own long run self-interest.

(4) failure of the Government to meet C.A.C.'s request to set up committees with effective powers to examine and curb price markups not justified by basic costs. We feel that the mere existence of such committees would have had a beneficial effect. Had they been instituted, action could have been taken where there were not good reasons for

price 'hikes'. Alternatively, where they were justified, we could have been so informed.

(5) the ineffectiveness of the Government in bringing home to the people who elect it the fact that the welfare, health, and social security measures which the public demands and which all political parties, including the Government, are endeavouring to promise or implement can be paid for only by the people themselves.

It is generally accepted that the outlays necessary to provide for all forms of social security are highly inflationary. With governments at all levels now taxing away a third of the national income, I believe that they—the Federal, Provincial, and Municipal Governments and, in fact, all political parties in Canada—must be honest and courageous enough to tell the Canadian electors the complete story of what is involved in maintaining a national security programme, which we *must* have and which may have to be maintained for many years, *plus* an expanding social security programme, which the public has indicated it would like to have.

Inadequate Government Policy

by A. R. Mosher
President, Canadian Congress of Labour

The views of the Canadian Congress of Labour with regard to price control are well-known to the Government and to the people of Canada. Long before the war ended, the Congress urged, in its annual representations to the Government, that price control be maintained, with subsidies if necessary, until production had caught up with consumer demand, and prices might safely be left to the operation of the economic laws involved. Unfortunately, however, the Government paid no attention to our recommendations, with the result that the cost of living index has now reached the unprecedented figure of 188.9 points, and the people of Canada have suffered a loss of hundreds of millions of dollars as a direct consequence of the Government's failure to control prices.

At each meeting with the Government since the war, the Congress has renewed its demand for price control, and at a meeting with the Government on February 20th last, it was joined by the Trades and Labor Congress of Canada, the Canadian and Catholic Confederation of Labour, and the Dominion Joint Legislative Committee of the Railway Transportation Brotherhoods in making a special submission to the Cabinet on this question.

The Drop in Real Income

We pointed out at that time that, while Canada was making heavy defence expenditures to protect itself against Communist aggression, inflation was sapping the economic strength of the nation and was Communism's most powerful ally. The increase in the cost of living had almost wholly nullified increases obtained by the workers since April, 1946. The average weekly earnings of salary and wage earners in the nine leading groups of industry covered by the surveys of the Dominion Bureau of Statistics were $32.56 on April 1st, 1946, and by December 1st, 1950, they had risen to $46.59. In terms of April 1946 dollars, however, they were only $32.89, a real increase of only 33 cents. The situation is now, of course, very much worse, in view of the increase of 17.8 points in the cost of living index since December, 1950.

Arguments for Price Control

In their memorandum, the four central Labour bodies, representing over one million workers, analyzed the arguments against price control and answered every one of them. They showed, for example, that there was no justification for believing that wholehearted support for price control could not be secured from the people of Canada. Furthermore, they pointed out that Canada now has the experience of the war years upon which to base its price control policies, whereas in 1941 no experience whatsoever in that field was available. With regard to the familiar argument that price control involved wage control, it was pointed out that price control could exist without wage freezing, but that if the Government would institute a general policy of price and production control, Labour was ready to take part in a joint Government-Labour-Management conference to consider wage stabilization.

American Experience

The attitude of the Canadian Government is even more difficult to understand when it is recognized that the limited measure of price control adopted in the United States has definitely stabilized prices there. In the twelve-month period from July, 1950, to July, 1951, the Canadian index increased by twelve points, while the United States index rose only nine points; the cost of living is now higher in Canada than in the United States.

Policy Change Almost Dictated by Consumer Needs

The recent radio broadcast by the Honourable Douglas Abbott, Minister of Finance, in which he reaffirmed the Government's decision to do nothing about price control, but urged housewives and other consumers to practice thrift, has simply infuriated the Canadian people. There has been no change in the Government's policy since the end of the war, and Mr. Abbott will go down in history as one of the worst

guessers among Canadian politicians. It will be remembered that, a long time ago, he predicted that the cost of living index in Canada would not rise above 145 points. Perhaps he still thinks it is at that level; at any rate, the Government has been absolutely blind to the overwhelming demand of the Canadian people for price control, and its failure to act in this respect has been nothing less than disastrous for the Canadian people as a whole.

Reduced Living Costs Through Equitable Controls

by Percy R. Bengough
President, The Trades and Labor Congress of Canada

The chief concern of our members and their wives is the small bag of groceries they get for $5.00. They are not in accord with the position taken by the Government of Canada in refusing to impose overall price controls. Neither do they approve of the methods now being officially employed to bring down prices.

The Government's suggestion that we buy less and curtail business as the solution for inflation seems particularly faulty. No country can improve its position by restricting the purchasing power of its citizens. To follow this lead could only result in unemployment and underemployment for the workers, stagnation for the manufacturer, and disaster for the merchant.

Credit Restrictions Ineffective

In the opinion of our affiliated membership, the amendments to the Consumer Credit Act introduced last March, which increased the down payment from one-third to one-half on motor cars and from one-fifth to one-third on almost all the household equipment needed by a young couple to set up housekeeping, did not constitute good legislation. They formed, on the contrary, excellent examples of class legislation, for they restricted only the purchases of the relatively poor. The regulations do not in any way hinder or hamper purchasing by those citizens who can supply the necessary one-third or one-half, or even full price.

Refrigerators, radios, washing machines, and furniture are all necessities in our modern homes and of present-day living. Government policy appears to demand that young couples go without these necessities when they set up housekeeping. However, these young Canadians are doing what they can. They are borrowing the larger down payments from loan companies. This is clearly demonstrated by the fact that more Canadians are borrowing more money from small loan companies than ever before.

Of course, the carrying charges on the borrowed down payment added to the carrying charges on the unpaid balance in these transactions place a heavy financial burden on these young married couples. These added charges also force up the effective price of the article. For these Canadians, the Government's so-called anti-inflation policies have only meant further increases in prices. In the meantime, the prices of most commodities have continued to rise despite all that the Government has said about curtailing inflation and the upswing in the cost of living.

Wages and Prices

It has been contended in some quarters that organized labour in constantly seeking higher wages is the prime cause of higher prices. The facts, however, prove otherwise. The vast majority of the affiliated membership of The Trades and Labor Congress of Canada work under agreements with their employers which cover working conditions, hours, and wages. Many thousands of these agreements exist throughout Canada. Naturally they vary in many respects, but they are very similar in that they generally run for at least a year, during which the wage rates are fixed regardless of what may be happening to prices.

It is true that some of these agreements have been opened up before the expiry date in order that adjustments might be made to wages because of greatly increased prices. However, it must be stressed that all such decisions to open the contract early were taken mutually by union and management. They could not be taken legally in any other way.

We never catch up. Wages never overtake prices on the upward climb. Even when wages are being negotiated in the new contract, they are set against what has already happened to prices and to the cost of living and not against what may happen to these in the future.

We are on record as preferring more economic stability in the interests of our country and people. We would sooner see a reduction in the cost of living figures than an increase in the figures on the pay envelope. In taking this position, we have in mind the plight also of those on fixed incomes and pensions.

A fact usually overlooked is that organized labour is not able or in a position to mark up its prices on a take it or leave it basis. The price of labour is settled by negotiation. We prefer it that way. We go before conciliation and even arbitration boards in this process in order to show the need for wage increases. Others may just erase the 50 cents and mark up 75 cents on commodities people have to purchase to live. Surely they too should be called upon to present their reasons to a suitable authority as to why the price increase is necessary.

Recommendations

The Government of Canada should change its approach to sky-rocketing prices. It should reinstitute the policy of subsidizing basic

food commodities and enforce a reduction in consumer prices. As a means of defraying the cost of subsidies and to eliminate profiteering, the 100% excess profits tax should be reimposed.

We further believe that the Government should establish a Board to which application must be made for approval of all price changes, and that no price increase should be allowed in the necessities of life.

In adhering to and promoting this policy of overall price controls, we are reminded of the words of the late W. L. Mackenzie King when, as Prime Minister, he said, in a radio broadcast announcing price controls in 1942,

> "The truth is that all but an insignificant minority of the population would be worse off as a result of rising prices, if prices were permitted to rise unchecked, and, in general, the relatively poor would suffer more than the relatively well-to-do."

The Rt. Hon. J. L. Ilsley, when Minister of Finance, said the wartime experience with price controls showed that because the Government had spent about $200 million on subsidies, the people of Canada had saved $2,500 million. In simpler terms, that means that for every dollar spent on subsidies, the consumer saved $12.50.

If savings such as those could be attained through the application of subsidies on basic food products today, then our membership would be able to obtain a far larger basket of groceries for $5.00 than they can now. Such an improvement in the living conditions of our people would more than justify the immediate imposition of price controls and the application of food subsidies.

Complete and Equitable Controls, If Any

by H. H. Hannan
President and Managing Director
Canadian Federation of Agriculture

The Government of Canada today is confronted with an insistent demand for the imposition of partial price controls as a means of halting inflation and bringing down the cost of living. The chief demand is for the imposition of controls on food prices. The Canadian Federation of Agriculture has opposed the imposition of such partial controls because of the obvious unfairness of such a policy to the country's agricultural industry, which is still basic in the nation's economy.

Complete and Equiable Control if Any Control

The Federation is not in opposition to a general policy of controls,

if and when the Government finds such to be imperative, and provided such controls are applied across the board on prices, profits, and wages and fees, without the exemption of any group.

The Federation believes that in advance of such action there should be established, by careful study and analysis, the most equitable basis possible upon which to impose controls, which, if they are to be effective, must be in the nature of complete economic control, with all that it implies in the way of rationing, regulation, and policing.

The Federation has repeatedly emphasized that even the imposition of general controls cannot be fairly done by merely freezing prices as of a certain date on the calendar. Farm prices in particular are subject to heavy fluctuations from month to month or from day to day, and even as between various farm commodities themselves. The necessity for careful study to devise an equitable basis upon which to impose general controls would therefore seem obvious. The freezing of any farm commodities at unfairly low levels would be a serious injustice.

More than a year ago, the Canadian Federation of Agriculture made a public statement of its views on price control. At its semiannual meeting in Fredericton, N. B., in September, 1950, the following resolution was passed:

> "That the Government be asked to name a competent body immediately to undertake a continuous study of the position of the various economic groups in the nation and make recommendations looking towards the most equitable basis possible upon which to impose controls, if and when such are needed."

The Government's response to that resolution was that it already had competent observers within the service making such studies continuously.

Following its fifteenth annual convention in Calgary in January, 1951, the Federation, in the course of its annual presentation to the Federal Cabinet at Ottawa, said:

> "The farmers of Canada are anxious to see implemented sound monetary and fiscal policies to prevent further inflation and protect the value of the consumer's dollar. It may be that in the near future the Government will introduce general price controls. If so, such controls should be made effective clear across the board on all profits, prices, and wages. To exempt the economic returns of any group would be to grant a privilege which cannot be justified."

Agriculture's Relative Position

While agriculture today is not at the depression level which it faced in 1939, any policy of price controls on food, without similar controls of the prices of all that goes into costs of production, would quickly

place the whole farming industry in an unbalanced position, while other prices and returns continued to mount.

In briefs and presentations to the Government, and in public statements, the Federation has made the claim that food prices today are not relatively high when compared with wage rates in industry or with profits in industry.

In public statements recently, we have said, in reference to pressure for price controls on food, that since everybody's wage, or income, or fee, enters into somebody else's cost of production or cost of living, or both, the demand for such control if acted upon, would create a hardship on the farm family. It would make the farmer the goat of an inflation era.

The consuming public is very critical today of the high cost of living. That unfavourable consumer opinion is not justified if directed at prices and returns received by farmers. If carried to the extreme, it could result in market situations and national policies which discriminate very unfairly against the farm family. The farmer is not to blame for high food prices. In fact, he has less influence in determining the prices he is to receive for his products than have industry and labour in setting the prices they receive for their products or services.

The farmers of Canada do not ask for specialized treatment. They ask merely to be dealt with on an equitable basis with other groups in the nation.

There can be no question (and we have assured our Government to this effect) that should there be a further deepening of the present emergency, the agricultural industry of Canada will go all out to produce to the maximum of their resources of manpower, equipment, and land. Farm people will be found ready to assume their share of the responsibilities and sacrifices required of our citizens. They ask only that there be as equitable as possible a distribution of the economic burden.

Opportune Time Not Yet Reached

by E. F. K. Nelson
General Manager
Canadian Retail Federation

There is no doubt as to the seriousness of the problem that inflation poses for Canada. There does, however, exist debate as to how best to combat it. Considering the splendid performance of our Wartime Prices and Trade Board, it is not unnatural that many feel that a reimposition of price control would go far towards halting the upsweep of our cost of living.

When we began price control ten years ago, Canada and her allies were engaged in a life and death struggle. The goal of victory in total war dictated all our policies. If freedom were to go temporarily, if great economic sacrifices were to be made, then such things had to be. With a million Canadians in uniform, the home front loyally supported the necessary steps taken.

Today we are in a vastly different position. The cold war, except in parts of Asia, has not flared into battle. We are engaged, with the rest of the western world, in rebuilding our defences, and we find the economic effects decidedly uncomfortable. For those on pension and other forms of fixed income, the results become tragic.

Complexity of Controls

Would price control be the answer? We should take a long and careful look at its inevitable costs before we say "yes" to that question. We simply cannot freeze prices at some particular retail level without a host of other controls to back up such a policy. We live in a complex economy. Control of end prices requires policing and inspection and thousands of individual decisions as to individual prices or the provision of formulae for maximum markups allowed. Allocating many materials, providing manufacturers with requirements for the production of lines which have become unprofitable but are needed by the public, setting wage and salary controls, and considering endless appeals—these are but some of the attendant complexities that accompany a determined price control programme.

We would have to set up a vast bureaucracy, with offices and staff all across the country. The men and women so engaged would be non-productive. The labour of others would have to be used to maintain them and their families.

Duration of Controls Unpredictable

Secondly, we do not know how long the present situation will last. The cold war may go on for a generation. It may explode into actual war at any time and, if it does, there will be no discussion as to controls. We will get them on a scale that will make those of World War II look relatively simple.

Government Policy Most Effective Remedy at Present

I believe that we should go on fighting inflation with the sort of fiscal and monetary controls we are now using. They are not proving to be ineffective. If they fail, we must go further. If we can avoid price control and its attendant endless regulations, requiring but more regulations to provide for the situation the last one created, we will save our country from much confusion and difficulty and encroach as little as possible on our liberties and freedom.

We can see in the United Kingdom that price controls do not necessarily keep down prices. We know that effective price control requires that personal sense of responsibility on the part of most of our population which the impact of war develops. It is very much a matter of opinion whether the public would give the same kind of support to such a programme under today's conditions that they gave in war and would give once more should full-scale war come.

We may *have* to take on the burden of such controls again. If so, let us not do so lightly or casually.

Complete Control Not Yet Necessary

by Hugh Crombie
President, Canadian Manufacturers' Association, Inc.

When the policy of establishing controls on prices and wages was introduced by the Government of Canada as a war measure in the fall of 1941, the Canadian Manufacturers' Association declared its support of this policy. Well before the end of the Second World War, the Association declared as part of its policy that all wartime controls should be abolished as soon after the war as conditions would permit. That is, the Association gave its hearty support to those controls which were considered necessary for national security during the war, but *also* constantly advocated the gradual removal of controls as soon after the conclusion of the war as the national situation permitted.

Approval of Specific Controls

Since the beginning of the war in Korea, the Association has agreed with and has supported the policy of the Government of Canada in imposing and operating controls in specific instances, for example, in regulating scarce materials. The situation at present, however, is very different from that which existed during the Second World War towards the end of 1941. There is nothing approaching the same urgency which would require the imposition and maintenance of rigid controls over nearly all phases of national activity and over the actions of millions of Canadian citizens, and the establishment and operation of an immense bureaucracy.

Degree of Defence Spending and of Consequent Inflation

The Government has stated that during the fiscal year 1951-52 it expected to spend over one and a half billion dollars on defence and that it was contemplated that this rate of spending would be maintained for three years—five billion dollars to be spent in three years. For this

year this represents about 10% of the total national income of around sixteen billion dollars. At the peak of the last war the government was spending about 45% to 50% of the national income on defence.

What is being done today can be described as one-quarter of an all-out war effort, but it has had to be superimposed on an economy already operating at close to capacity.

However, the Canadian economy is an expanding one. The working force is being increased by immigration and by the employment of more women. Also an increase in the per capita production can be expected. In normal times this amounts to 2% per year, due to the replacement of obsolete tools by modern and more productive tools and to more efficient management.

Canada should be able to take the defence programmes in its stride and, barring an all-out shooting war, inflation can be kept within bounds.

Full-Scale Control Ineffective and Undesirable at Present

There are those who advocate direct control of prices as a means of controlling inflation. Price control does not prevent inflation; it only conceals it or postpones it. It conceals it if any system of direct subsidies is required to maintain price levels. It can postpone it as it did during the last war.

The imposition of price controls would mean wage and salary control, rationing, and, in fact, complete regimentation of the national economy.

Governments have their duties, but the Canadian people, while they are willing and anxious to cooperate with governments in carrying out their heavy responsibilities, prefer to do things for themselves as far as possible. The more practical method in the interest of all Canadians is to deal with situations as they arise and to impose or refrain from imposing additional controls and restrictions according to the conditions and necessities which may arise in the future.

Cooperation Rather Than Regimentation

by Francis G. Winspear
President, Canadian Chamber of Commerce

This country's great debate on the price control question has reached a new high degree of intensity. In the debate, two general policies are being advocated to cope with inflation—a problem which, to put it in its simplest terms, is the result of an over-supply of money and an under-supply of goods. One policy calls for outright price and other controls

as a means of preventing higher prices, regardless of supply and demand. The other policy would depend on such things as credit restrictions, higher taxation, reduced bank loans, higher interest rates, and postponement of depreciation allowances on new business, to cut down the supply of money and make the available supply of goods stretch farther.

Opposition to Direct Controls

The Federal Government has settled on the latter course, with emphasis on fiscal measures, to arrest the inflation tide, and recent statements by Government leaders reveal no inclination to reverse or modify this programme. Insofar as the Government shows its determination to resist growing pressure from some quarters for unworkable price controls, it deserves commendation. In a submission to Ottawa prior to the bringing down of the 1951 budget, the Canadian Chamber of Commerce, which embraces all types of business in this country, urged the Government to consider indirect controls as the first measures to be employed in an attempt to curtail the inflationary spiral. The Chamber statement read as follows:

> "We believe that direct controls do not provide a complete and satisfactory solution to the [inflation] problem, and in any event are not effective over a long period of time. Indirect inflationary controls, such as increased taxation and credit control, and the development of a favourable climate for the expansion of productive facilities, are in the long run more effective."

Emphasis on Thrift

One of the most effective tools in combatting the evil of inflation is thrift—a real effort on the part of all to save and prevent waste. Besides applying to the general public, this applies doubly so to the Government. Excessive purchasing power in the hands of government adds to inflationary pressure, and while we must lend every support to the Government's heavy spending program on defence, we should, at the same time, demand a close accounting of all moneys not spent directly on rearmament. Evidence that the Government is straying from the "non-defence" economy path is mounting. Figures released by the Comptroller of the Treasury covering the first five months of the fiscal year show that total non-defence spending has risen several million dollars in less than half a year. In addition, outlays of roughly 40 out of 67 listed departments and agencies—excluding defence departments and affiliated branches—show increases rather than decreases. If there is to be a serious attempt by the Government to stem inflation, ordinary expenditure must be cut down. As the Chamber has pointed out in official representations to Ottawa,

"Any Government attempt to persuade individual citizens to

save and to cut expenditures will be ineffective if the Government does not take the lead in setting the example."

Fallacy of Controls

Beating inflation, it should be emphasized, is not the job of government alone. Just as a number of factors serve to engender inflation, the attack to hold it in check and ultimately defeat it must be pressed from various sources, and this has a bearing on every Canadian. During the past year, the Canadian Chamber has carried on a concerted effort to bring home to Canadians an appreciation and understanding of the problem. We have pointed to the fallacy of controls—to the fact that once we are committed to such a program, a creeping paralysis sets in. Eventually price and supply controls spread over the whole economy—that is, wages, production, industrial supplies, consumer goods, etc. Soon we have a regimented economy on our hands, and individual freedom itself is threatened. Of course, it is understandable that in a defence economy, some restrictions and regulations may be necessary to allocate scarce materials and possibly manpower in some essential lines, but it is well to keep in mind that controls are only controls *and not remedies.*

The Chamber's report on inflation points out that in one way or another the manufacture of war materials in quantity will pinch our standard of living and that "we as Canadians must realize sacrifices will have to be made". In order to meet the challenge, all of us will have to work harder and more efficiently, put in longer hours, and exercise more ingenuity and more imagination. In times such as these, with the pursuit of peace our major objective, we must exert our maximum effort as our personal contribution. If it is clear that Government policies are *truly* anti-inflationary, they should be supported, but at the same time we must be prepared to press for adjustments that might be required to keep the programme in tune with the times.

The Academic Economist and the Businessman

Clayton C. Curtis
James M. Gillies

In this article, Messrs. Gillies and Curtis strive to explain and to reconcile the divergencies of opinion which exist between the academic economist and the businessman.

In the first place, they point out that the economist's goals as critic, expositor, and scholar complement and supplement business aims. Secondly, they discuss the long-standing claim by the businessman that the economist has socialistic tendencies. Their conclusions should form thought provoking reading for both groups.

THE TRADITIONAL attitude of the businessman toward the academic economist has been one of skepticism, if not downright mistrust; and the feeling has always been mutual. The position of the businessman has generally been based on two common misconceptions: (1)that the academic economist is teaching because he cannot perform and is fortifying his ego by learned excursions into abstractions which have neither practical nor literary features to redeem them, and (2) that the majority of academic economists are somewhat inclined towards policies and recommendations which are somewhat to the left of a sound center—policies and recommendations which they do not have to test in the crucible of the market place or of public opinion. In other words, the tradition of Owen, Fourrier, Marx, Douglas, Hobson and today, in a lesser sense, Keynes, has branded all economists as somewhat leftist. The economist, on the other hand, instead of considering the businessman as the operator and creator of the processes which he, as an economist, is trying to explain, has created rather an imaginary capitalist with only one purpose—the maximization of present profits, whether it be through forcing labour to work under impossible conditions or through building a strongly entrenched monopoly position.

It is clear that with such a starting point, room for useful agreement and co-operation among the two groups is somewhat limited. Nevertheless, both these descriptions are not merely overstatements, but gross misinterpretations of the general nature of the two groups. When the misunderstandings are removed, both groups can co-operate to carry on more fruitful and useful work.* In many respects, this reinterpret-

*No one would attempt to characterize the thinking of *all* economists or *all* businessmen. The statements concerning the latter in this paper must be based upon hearsay. Any gross injustices may be picked out and would be gladly received in a further note, if any one is inclined to comment.

ation is not only an interesting study from the point of view of improving understanding—or perhaps rather removing misunderstanding—but also, in the present era, a matter of grim necessity if both groups are to survive in anything like their present form.

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If, as it is alleged, economists study to obtain their Ph.D. degree to teach other people to obtain Ph.D. degrees, then truly the function of the academic economist is not only limited, but also sterile. Although it can be argued that there is a pressing need for competent teachers, the great universities with adequate resources must acknowledge that the obligations of their faculty extend beyond the boundary of imparting previously obtained knowledge to students. Futhermore, once a university recognizes this, its faculty has an equal responsibility to effect the policy. Thus the academic economist, over and beyond teaching, has a triple function—as critic, expositor, and scholar. Few economists have the ability to perform *each* of these roles to their own complete satisfaction, but a test of their competence lies in the manner in which they approach these three ends.

The Economist as a Critic

A university, with its tenure system and tradition of academic freedom, is an ideal breeding place for ideas. Ideas, in turn, form a basis for action, which may well remedy a situation which has developed through lack of examination and criticism. In a period in which a larger proportion of the population is employed by the government every year, and an ever larger share of the national production is being taxed and distributed through government channels, it is imperative that the dissenter will always be given his right to criticize. Similarly, in a period when monopoly is rising (circa 1900), injustices interpreted without ethics, but in terms of utilization of resources in a wasteful manner, must be criticized and stopped. Such evaluations of purely technical problems (and the operations of a modern economy are not understood without much study) can only be considered by the specialist. Thus the specialist is not fulfilling his function if he does not deem it his responsibility to operate as a critic. This is not, of necessity, a destructive function; in many cases it may be constructive. In any case, its essential nature (and necessity) can in no way be overlooked. Who will point out the abuses of government in the operation of the economy in a particular sphere—let us say, for example, monopoly policy? Surely it cannot be the members of the government itself, nor can it be the economists of private industry, for the charge of partisanship is too hard to refute. The analysis must come from the critic. Who is to examine the effect of legislation upon the field of private enterprise?

Once again it must be the critic. There has to be a disinterested party to judge these phenomena. The academic economist is the only person who can do this, and to the extent that he does, he is fulfilling one of his functions.

The Economist as an Expositor

The above clearly points out that the economist as critic is criticizing on the basis of some preconceived idea of what is correct for the economy. This, of course, is as it should be. Certainly any movie critic, book reviewer, art specialist, etc. must be reporting in terms of his own standards and tastes. However, the academic man can more easily determine what the standards and goals are. They are stated clearly and distinctly by the successful critic. Thus the economist in the academic institution has made a special study of the problems which he is analysing. As the surgeon who removes an appendix to cure an illness, the economist diagnoses the problems of the economy with the aim of adapting it to suit the goals he espouses. Whether one agrees with the views or not is of small importance. The important feature is that the unbiased opinion of an independent mind has probed the situation. The probing may produce no changes; it most certainly will, however, produce thought.

As an expositor, the academic economist has a responsibility to explain beyond the walls of a freshman classroom the operations of the economic system. This is not essentially adult education. It should be much more and implies that the study of an economic system, in and by itself, is not particularly valuable unless the results of the study are placed in understandable terminology and made available to the people who make up the economy. Thus knowledge for its own sake in this field must be condemned. Research projects in economics must always be preceded by the question, "Research for what?" Economics and living are so inextricably linked together that there is an obligation on the part of the economists to explain what they know about the operation of the system. Consequently, the traditional academic view condemning popularizing, that is, writing for popular journals and public speaking (a process at which economists, unfortunately, seem to be notoriously dull), seems badly misplaced. Economists must popularize the results of their intensive study if they are to justify the study in the first instance.

The Economist as a Scholar

The plea for an active part as critic and expositor does not, however, limit the economist's work as a scholar. Knowledge of the functioning of business, trade, finance, depression, etc. is all too scarce, and diligent scholarship and searching are the only ways in which new ad-

ditions to the store of knowledge can be made. Nevertheless, a handy maxim for all economists to follow is that no past event has any significance beyond the manner in which it helps forecast the future. Scholarship, like research, should have a purpose. It is perhaps at this point that most businessmen part company with economists, for in pursuit of information as to the functioning of the economy, the economist has tried to handle the great complexity of the problem by reducing his thinking to a number of models. This model-building of necessity uses a great number of assumptions which every businessman knows are entirely unrealistic. However, this is in no way a fatal blow to the economic theorist, who is in many ways the businessman's staunchest ally, as a re-examination of the function of theorizing clearly shows.

The object of theory is not to describe; the object of theory is to predict. Hence economic theory is good or bad on the basis of whether the results obtained through its use can be used to form an approximate prediction of events. Description stems from particularization, but prediction can only be based on generalization. Thus a criticism of economic theory because the model is unrealistic—even if some sort of meaning might be given to the word—not only is unfair, but also shows a lamentable misunderstanding of the function of theory. Yet economists, as well as businessmen, fall prey to this misconception. For example, the theory of monopolistic competition, developed a number of years ago, was based upon a model which described such aspects of the market as might be competitive combined with those which were monopolistic. It was greeted with the academic economists' warmest accolade, the revision of elementary text-books to take account of it, but its effect has probably been on the whole negative. The reason is clear; the model became so particularized that no generalizations and predictions could be made. It therefore had no use. If the object is description, one needs merely to describe—not build a model.*

Other models, with more heroic assumptions, have proven their worth in explaining economic phenomena. Consequently, a criticism of economic theorists for working with abstractions is completely unsound. Information which in many senses is common parlance today was first gained from models.

Therefore, the economist has a threefold function—that of expositor, critic, and scholar. To the extent that his work is directed towards fulfilling these duties, he is serving the natural purpose dictated by his training and chosen occupation, and refutes the not only hackneyed but also completely nonsensical belief that economists *teach* because they cannot *do*. Academic economists teach because it provides a base within a

*This is perhaps a rather harsh interpretation of Chamberlain's theory, but essentially, when the dust clears away, this has been its effect in economics.

university for developing and carrying out their operations. Similarly, their model-building and theoretical work is not an intellectual exercise, but a very true attempt to grasp the intricacies of a complex organism—the functioning economy. To the extent that an economist operates in relation to these goals, he is operating in direct co-operation with the businessman.

In the modern age of mass production, complex technology, vast markets, and increasing control extended by the present economy of partial mobilization, the success of a business is based not on its internal operation, but on the manner in which it fits into the general overall economy. To make adjustments to current and future situations is the supreme task of the policy maker. How better can this be done than with the aid of the specialist's knowledge of the economy—with the aid of the independent critic, who, without biased interest, examines the situation impartially, explains the nature of the conditions in the light of his knowledge, and predicts future possibilities on the basis of his theoretical examination? The economist is not only the ally, but also the indispensable confidant, in the sense of a purveyor of information, of the modern, progressive businessman. There is no conflict; there is room for co-operation. Certainly the economist probably could not administer a particular business successfully; but could a businessman lay his finger on the complex economy of a nation and point out the danger points? The index of bankruptcies and business failures in 1930-33 seems to indicate that he could not; nor should he be able to, for such an analysis does not lie within his responsibility. It *is* his function to utilize the fruits of the analyses provided by the economist. Both must complement and supplement each other.

II

The strange belief that all economists are socialists has probably developed because (1) the minority who are socialists are more vociferous than their capitalistic counterparts and (2) socialism is not always clearly defined. If the man who attacks monopoly on the grounds that it leads to a misuse of resources or who stauchly believes that no part of the economy should remain unemployed for a number of years without the incepton of some positive program to remedy it is a socialist, then probably most economists are socialists. However, if socialism implies that the price mechanism should be superseded by some other order, presumably a planning board, then there are a few professional academic economists who are socialists. Consequently the results of a census of socialists among economists would vary with the definition applied to the word. It is impossible to generalize, but probably most economists would subscribe to the position that a freely competitive pricing system is the approximate economic goal towards which society

should move. This goal, which presupposes a high degree of mobility of resources, a reasonable amount of general knowledge about market conditions, and a situation where no single firm has control over the price of its product, is embraced because it will allow the consumer to determine by choosing the products he wants, expressed through prices, the way in which the resources of the country will be used. This seems to be a generally accepted goal. Consequently, the economist attacks anything which stands in the way of the maintenance of such a market organization—tariffs, monopoly, unfair trade practices, price support programs, minimum pricing, etc. Similarly he cares little whether the monopolies are created by private agencies or by the government. The rigidities such as minimum prices for agricultural products created by the government are as abhorrent as any minimum price created by industry.

The classical economist may well feel that his goal is far from achieved, and consequently in the short run proposes that income distribution be modified by progressive taxation and baby bonus, but few in their role as economists support proposals which hinder the operation of the free market pricing system. This is true because they aim at the largest possible production of goods and services—the real wealth of a nation. They know that this is possible when the price system allocates resources and that in so doing it also lays down the basic pattern for income distribution.

The modern businessman does not quarrel with these aims. He cannot, for if he is fulfilling his functions as a manager and innovator and believes in what he says, he favours the competitive market as does the economist. Are both consistent in the implications of their beliefs? The failure of the economist on this point is insignificant beside the failure of the businessman. It is not only nonsensical but also sometimes clearly sickening to read pontifications on the part of businessmen regarding the necessity of a competitive market and the capitalistic system (for the competitive market is the real essence of the capitalistic system) when the very businesses which they direct are the results of tariffs, restrictions, and monopolistic practices. Either you believe in freedom for all, or you do not believe in it for anyone. Businessmen should examine their history to find whether socialism through monopoly, commonly disintegrating into fascism (and the two are the same thing from an economic point of view), is a product of businessmen or economists. Not all businessmen are fascists; not all economists are socialists. The proportion is about the same on both sides.

III

If the above two sections are a fair statement of the proper role of the economist, it is apparent that economists and the greater portion of

the business community enjoy a more or less harmonious relationship. The economist's specialized training is of great use to the businessman in the conduct of his affairs. Similarly their end goals are closely allied; the businessman is concerned with the proper adjustment of his business to the economy, and the economist, with the relation of the economy to the individual enterprise. Consequently these two groups should not be opponents, but partners in the defense of the fundamental principles which they both seem to hold. If a business community is to survive under free enterprise, its members must be willing to adjust to changing conditions. This can be done with the aid of the economist. If the academic economist is to survive, an atmosphere of freedom must be guaranteed by the dispersion of economic power which an enterprise system, as opposed to a government system, gives. These two aims are thus closely related. Misunderstanding and charlatanic practices should not be allowed to separate them.

What we are calling for then is a reappraisal of the functions of both businessmen and economists in order that they may co-operate in this period of crisis so that both may survive. The economist should be aware of the role of the businessman, and the businessman should be equally conscious of the contribution of the economist. J. M. Keynes, the great businessman and economist, has said: "The ideas of economists and political philosophers both when they are right and when they are wrong are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas. Not, indeed, immediately, but after a certain interval; for in the field of economic and political philosophy, there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest. But, soon or late, it is ideas, not vested interests, which are dangerous for good or evil."*

*Keynes, J.M., *The General Theory of Employment, Interest and Money,* Harcourt Brace and Co., New York, 1936, pp. 383-384.

What Do High School Students Know About Business?

John J. Wettlaufer

The attitudes and opinions of the students of today will set the atmosphere in which business must operate tomorrow. The great majority of students will go to work upon completion of their high school studies. They will be employed in a business system about which they have learned very little. They will take their place as citizens of the community with little knowledge of the contribution that business makes to that community—the provision of jobs, income, and general welfare.

Mr. Wettlaufer's survey of London high school students had three well-defined purposes: (1) to show the attitudes and opinions of high school students with regard to the business world as revealed through questionnaire study, (2) to introduce the socio-economic plant tour to Canadian business as a means of promoting better understanding of the private ownership system, and (3) to test its effectiveness as a teaching medium for high school students as revealed through a second questionnaire study.

In the first of his three articles, published in the spring issue of *The Quarterly,* the investigator dealt in detail with purpose (1). He showed what high school students were thinking about: the division of the sales dollar, profit levels, company investment in plant and machinery per worker, the desirability of closer government regulation, etc. The survey brought to light many misconceptions the students were harbouring about matters of important concern to themselves as members of the business community.

The second article, published in the summer issue of *The Quarterly,* illustrated the main channels of communication between business and the community with special emphasis on the socio-economic plant tour. A description was given of two socio-economic plant tours especially devised to promote a better understanding on the part of the students of basic economic facts.

Now in Part III, Mr. Wettlaufer goes on to show the effectiveness of the socio-economic plant tour as a teaching medium. He uses the "before" and "after" results of the two questionnaires to show what changes have been made in the attitudes and opinions of the students attending the tours. The article concludes with a general summary of the whole project.

HOW MUCH did the students learn from their economic excursion into industry? How did they interpret the basic information which was given to them? Socio-economic plant tours involve considerable expenditure of manpower and money. Was this expense justified? The answers to these questions should be revealed to a large degree by the results of the second questionnaire.

The Second Questionnaire

The students in the sample group (Beck Collegiate 12B and 12C and Beal Technical School T-12B) had completed the first questionnaire which had stimulated some thoughts on various concepts and ideas in business. They were taken on a tour of two local plants representing both light and heavy industry. During the visits the students were subjected to various techniques of economic education, but they were not aware of the fact that they would be asked to complete another questionnaire following the tours.

The construction of the second questionnaire was similar to that of the first, except for the omission of some general questions and the addition of a few new ones regarding impressions of the tours. Two weeks after the last tour, the second questionnaire, which was self-administered, was completed under the supervision of the investigator during a special class period.

Results of Second Questionnaire

The students answered the second questionnaire with much more confidence than they had answered the first. This was evidenced by the small percentage of "no opinion" answers, as well as the large number of completed questions.

Socio-Economic Plant Tour

The students agreed unanimously that they had enjoyed the tours. The length of the plant visit was "about right" according to 65%, while 24% said that they were "too short". All the students, with the exception of one, wanted to attend more tours in the future. Although the students were enthusiastic about the tours, they still had a few ideas as to how the tours could be improved.

—"Spend more time in the plant and choose guides who are familiar with all the operations."

—"Let the workers explain what they do and how they do it. They know more about it."

—"Distribute some literature dscribing each part of the plant *before* the tour."

—"Supply the guide with an amplifier at G.M. Diesel."

—"There should be a question and answer period with questions submitted on paper. This would save embarrassment if any questions were unintelligent."

—"A night tour might allow more time."

—"Need more than a few hours to see and understand the workings of a big company."

—"The men who perform the actual labour, given a chance, could present their views without the bias which might otherwise be introduced."

—"Tours should be made available to all secondary school students."

Division of Sales Dollar

The dramatic presentation of the division of the sales dollar seemed to be the most effective teaching device introduced during the tours. At McCormick's, profit on sales (2.3%) and profit on investment (1.1%) were emphasized in the discussion of the division of returns and during the presentation of the Annual Report. Three weeks after this exposure, 54% of the students placed the profit on sales at 2% - 3%.

Q. "What per cent of profit do you think McCormick's makes?"

	Before Tour	*After Tour*
ON SALES	30.6%	4.8%
ON INVESTMENT	22.3	3.4
	(arithmetic average)	

Having been told the profit story, many students revised their opinions of McCormick's profit.

Q. "Would you say their profit is too high, reasonable, or not enough?"

	Before	*After*
REASONABLE	38.3%	68.8%
TOO HIGH	23.4	4.4
NOT ENOUGH	12.8	20.0
NO OPINION	25.5	6.8

This is one example of a large segment of "no opinion" that was turned into a favourable attitude toward business.

The results of the General Motors Diesel presentation were also favourable. The exact profit figure was given by 42% of the respondents. Before the tours, students estimated G.M. profit per cent on sales at an average of 39%. Two weeks after the tour, they set 8.5% as an average profit estimate. When questioned about this profit, the group had no hesitation in calling it reasonable.

Q. "Would you say their profit is too high, reasonable, or not enough?"

	Before	*After*
REASONABLE	39.6%	79.5%
TOO HIGH	12.8	11.3
NOT ENOUGH	6.3	4.6
NO OPINION	41.3	4.6

The students applied the knowledge gained on the tours to general business.

Q. "Just as a rough guess, what per cent of profit would you say the average company makes?"

Before Tours	*After Tours*
35% (average)	6.2% (average)

Q. "Roughly, what per cent do you consider a fair profit?"

Before Tours	*After Tours*
25% (average)	6.8% (average)

After hearing the profit explanation in both plants, the students strengthened their feeling that industry in general was making a fair profit.

Q. "Do you feel that most industries are making too much profit, a reasonable profit, or not enough profit?"

	Before Tours	*After Tours*
REASONABLE	61.3%	86.9%
TOO MUCH PROFIT	22.5	8.7
NOT ENOUGH PROFIT	3.2	2.2
NO OPINION	12.8	2.2

Another shift in student opinion can also be traced to the sales dollar presentation.

Q. "After a company has paid for materials, taxes, and other costs, who would you say gets the largest share of the money that is left to be divided between employees and owners—the employees or the owners?"

	Before Tours	*After Tours*
EMPLOYEES	46.0%	87.2%
OWNERS	39.7	12.8
NO OPINION	14.3	0.0

Students revised their opinions of the return on investment following the tours.

Q. "About what per cent do you think stockholders are getting on their investments today?"

Before Tours	*After Tours*
14.4%	4.4%
(Average)	(Average)

In addition, there was a new interest shown in stockholders and company stock. When asked, "Where do you think most companies get the money they need to get started—that is, for building plants, buying machinery, and getting started generally?", 89% of the students cited the sale of stock. When asked about money to expand, the group mentioned re-invested profits, additional sale of stock, and bank loans. More students were ready to "risk" their money in company stock after an inspection of industry.

Q. "If you had some money—say $100—to invest, what would you do with it—put it in a savings bank, buy government bonds, or buy stock in a company?"

	Before	*After*
GOVERNMENT BONDS	50.8%	61.8%
SAVINGS BANK	38.0	19.1
STOCK IN COMPANY	9.5	19.1
NO OPINION	1.7	0.0

Repetition Aids Retention

The average investment per worker was brought out in the executive speeches, in the display material, and by the guides. A remarkably large number of students (79.5%) designated a figure between $4,500 (quoted at McCormick's) and $8,500 (quoted at General Motors Diesel) in the second questionnaire. In the first questionnaire, nearly 60% had had "no opinion".

Q. "Just as a rough guess, how many dollars would you say the average factory has invested for each worker?"

Before Tours	*After Tours*
$1623	$5534
(average)	(average)

The students were impressed with the number of stockholders in General Motors. This had been discussed in speeches, shown on a display sign, and illustrated in the *G.M. Folks* magazine. 55.5% of the students placed the number of stockholders at about 450,000. Before the tours, 72% would not venture a guess.

In contrast, the number of jobs and income for the community were not emphasized and did not show any significant change in the second questionnaire.

Better Understanding of Business

The "before" and "after" tests show that the students increased their knowledge of the facts and that they developed a more understanding and sympathetic attitude towards business.

The tours helped to crystallize opinions regarding the productivity concept for many students who were undecided about it or had not understood it before the tour.

Q. "Which of these two ideas about how to improve the Canadian worker's standard of living do you think is more nearly correct—that the workers should produce more, or that they should try to get more of the money the company is making?"

	Before	*After*
PRODUCE MORE	38.0%	70.2%
GET MORE	36.5	19.1
NO OPINION	25.2	10.7

Competition as a regulator of prices gained favour over government control.

Q. "In normal times, do you think we can depend on competition to keep prices at fair levels, or is some sort of government control needed to keep prices fair?"

	Before	*After*
COMPETITION	50.7%	65.9%
GOVERNMENT CONTROL	41.2	34.1
NO OPINION	8.1	0.0

Freedom of enterprise made some gains over government control, mainly in the shift from the area of "no opinion". Throughout the survey, the "no opinion" section seem to constitute a group that can be brought over to business if they are exposed to some economic education.

Q. "What is your feeling about the government regulation of business? Would you say it is better to regulate business pretty closely, or would you say that less regulation is better?"

	Before	*After*
REGULATE CLOSELY	51.5%	46.8%
LESS THE BETTER	16.1	36.2
NO OPINION	32.4	18.0

Q. "In industries where there is competition, do you think companies should be allowed to make all they can, or should the government put a limit on the profits companies make?"

	Before	*After*
LIMIT PROFITS	53.2%	51.1%
MAKE ALL THEY CAN	33.9	46.8
NO OPINION	12.9	2.1

The new understanding of business brought about by the socio-economic plant tours was illustrated in the changed attitudes towards the business system.

Q. "Which of these comes closest to your impression of the business system in this country?"

	Before	*After*
VERY GOOD, NEEDS LITTLE CHANGE	6.9%	12.8%
ON THE WHOLE, THE GOOD FEATURES OUTWEIGH THE BAD	39.6	61.4
IT HAS AS MANY GOOD AS BAD FEATURES	36.2	15.4
ON THE WHOLE, THE BAD OUTWEIGHS THE GOOD	0.0	4.6
IT IS BAD; MAJOR CHANGES ARE NEEDED	2.1	0.0
NO OPINION	17.3	4.6

Apparently the students had given much thought to this question following the first questionnaire and the tours. Here are some of the answers as to *why* the students favour our business system.

—"We have fewer strikes than the U.S. or Britain, less capitalistic monopoly than the U.S., and less nationalization of industry than the U.K. *Ours is a combination of the best points of both.*"

—"Our system offers opportunity for all, and we can't ask for more. Business in Canada is continually expanding and bringing prosperity to all; so why change it?"

—"Much better than state control. Our method of capitalism, or so-called free enterprise, needs little change."

—"Business has unlimited opportunity to produce what it desires. Employees benefit highly from the generosity of business, and there are few combines."

—"The employers and employees seem to be happy with their wages and profits, and there are few major strikes because of disagreements."

—"I believe that our capitalistic economy, which employs the democratic method, is the best in existence."

The students who were *not* impressed with our business system were not as vociferous in their reasons as the other students, but some of their comments follow:

—"Canada does not take full advantage of her opportunities; she should be more independent."

—"There is not enough competition, and therefore, too much profit for the large companies, but they keep the people employed and are an asset to the community."

—"It *must* be bad, or the economy of Canada would not be in the state it is in now, i.e. in the midst of inflation."

—"Salary and benefit quotations to employees are quickly thrown out of line when income tax is deducted."

Opinion of Labour Remains Stable

The students changed their opinions of labour and what it has done for the community only slightly. A majority are in favour of collective bargaining and the right to organize. They feel that labour unions are a good thing for the country, but that they have grown large enough.

Labour still gets the credit for raising the standard of living, but business management made some gains at the expense of the government.

Q. "Which would you say has done the most to improve the living standards of the people in this country—organized labour, the government, or business management?"

	Before	*After*
ORGANIZED LABOUR	50.8%	59.6%
THE GOVERNMENT	14.7	4.1
BUSINESS MANAGEMENT	14.7	17.1
NO OPINION	19.2	19.2

However, business continues to hold a slight edge where government positions are concerned.

Q. "Which would you rather see in a high government position—a labour leader or a business leader?"

	Before	*After*
BUSINESS LEADER	34.4%	41.3%
LABOUR LEADER	31.2	39.1
NO OPINION	34.4	19.6

Security vs. Opportunity

The students remained consistent in their attitude toward security as opposed to pay. 84.7% prefer security. However, when it is matched with opportunity, the students turn down security.

Q. "When you look for a job, which will be *more* important to you—the amount of opportunity or the amount of security the job offers?"

	Before	*After*
AMOUNT OF OPPORTUNITY	71.4%	84.0%
AMOUNT OF SECURITY	20.6	16.0
NO OPINION	8.0	.....

The students did not change their minds regarding pensions. After the tours, 77.7% marked it as "important" in looking for a job.

The tour of industry enabled some students to decide where they would like to go to work.

Q. "Well, when you *do* go to work, would you rather go into business for yourself or work for a company?"

	Before	*After*
WORK FOR A COMPANY	51.6%	59.6%
GO INTO BUSINESS FOR MYSELF	33.9	36.2
NO OPINION	14.5	4.2

The second questionnaire seems to prove that the socio-economic plant tours can be an effective teaching medium. Large areas of misunderstanding such as that concerning the division of the sales dollar were clarified to a large degree. The students enjoyed the educational experiment and showed, by their retention of specific facts, that they *did* absorb much of the material that was presented to them. It is significant to note that the tours cleared up large sections of "no opinion" by giving the students an insight into industry.

Summary

The project, "Dollars at Work", was a very interesting and enjoyable experiment with high school students. A similar survey has been conducted in the United States, but apparently this represents the introduction of the socio-economic plant tour into Canada. A "before" and "after" test seemed to be an ideal way to measure any change that may have resulted from the plant tours.

The First Questionnaire

The survey of high school students, made through written questionnaires, revealed that students knew very little concerning principal economic facts inherent in our business system. The present curriculum in Ontario Secondary Schools does not include a course in economics for the academic divisions. Therefore these students must be content with secondhand information about the business system and how it operates.

Much confusion centered around the division of the company sales dollar. Students were hesitant about expressing an opinion on profits and dividends. The group was confused about basic concepts of the private enterprise system such as productivity, competition as a regulator of prices, etc. The respondents thought that the standard of living should be raised by social welfare rather than by increasing productivity. In general, the students were inclined to look to the government for the control and regulation of industry. A keen interest was displayed in the labour movement, and student opinion rated it above business as "having done the most to improve living standards". Strong tendencies toward security were registered in several sections, but the students were willing to trade security for opportunity. The students summed up their thoughts on business by classifying the system as having only a few more good features than bad ones.

Channels of Communications

There are many channels of communication available between a company and the residents of a community. The socio-economic plant tour was selected as being the most effective teaching medium. The use of all five senses—sight, hearing, smell, touch, and taste—made it possible to place the student in the same atmosphere as that in which business operates. Business management was very interested in the principles of the socio-economic plant tour, as the ordinary plant tour has not been very satisfactory according to many businessmen. However, the majority required proof that this new pattern in plant tours would be an improvement.

The Socio-Economic Plant Tours

A test of the socio-economic plant tour was made at McCormick's Limited, manufacturers of quality biscuits, and at General Motors Diesel Limited, builders of locomotives. These companies provided a good cross-section of industry. Both employed all the basic techniques of a socio-economic tour—i.e., concentration on a few main themes, repetition of these themes, dramatic presentation, and interpretation by executives and guides.

Although the program was weakened by the withdrawal of one company, the tours were conducted as scheduled in the original plan. A time lapse of nearly two weeks between the McCormick tour and the General Motors Diesel tour made comparisons of the effectiveness of each tour very difficult.

A continuing problem involved dealings with management personnel in the plants. Although top management subscribed to the principles of the new tour pattern, considerable time was expended in "selling" these ideas all down the line organization to the supervisor

level. As soon as the idea of the project was understood, people became over-anxious to help, and much care had to be exercised in retaining the original continuity of the whole program. It was interesting to note that special interest in the project was taken by those in management positions who had children of high school age.

The enthusiasm and interest of both the students and the companies in the socio-economic plant tours indicated that the tours were successful in acquainting the students with plant operations and creating goodwill. Evidence of the extent of the economic education was brought out in the questionnaire that followed the tours.

The Second Questionnaire

The effectiveness of the socio-economic plant tours was measured by examining the "before" and "after" tests. These were conducted under the direct supervision of the Division of Research of the School of Business Administration. The students were not informed of any connection between the questionnaires and the tours. They answered the second questionnaire with more confidence and more understanding. The percentage of respondents signifying "no opinion" was reduced for every question, and in some instances, this section was completely eliminated.

The last survey revealed a new understanding and appreciation of business management. The sales dollar presentation was very impressive to the students, and they were able to quote profit figures given to them four weeks before the test. Opinions on profits and dividends were modified substantially.

The amount of capital necessary to perform a job was highlighted by display signs and by the expensive machinery. *Economic facts have to be stressed in several different ways to ensure retention.* For example, the area of little change included income for the community, views on labour, and attitudes towards security. Very little or no comment was made during the tours in these areas.

Presentation of a few economic facts such as the division of the sales dollar helped to promote understanding of and build more favourable attitudes towards business. Students registered noticeable shifts of opinion in favour of increased productivity over the "get more" theory. Free competition made significant gains over government control and regulation.

Generally, the students left the plants with a much better impression of the business system than they had had when they began the tours. More of them favoured business, and they furnished reasons why, whereas comment in the first questionnaire had been limited to a phrase or two in most cases.

Conclusions

There is ample evidence to prove that the socio-economic plant tour *can* be an effective teaching device for high school students. A plant visit is a good communication device at any time, but when it is coupled with economic teaching, the tour can be a powerful influence in promoting a better appreciation of our business system.

All the objectives of the individual tours may not have been attained, but the "before" and "after" tests showed that there were significant shifts in opinions and attitudes which seemed to indicate a more understanding and sympathetic feeling towards business.

In addition to its function as a teaching device, the socio-economic plant tour can be useful as an indirect means of communication to supervisors and employees. One must understand the basic principles of our economic system in order to teach them to someone else. There were several instances during the tours when those in management positions were "learning" the basic facts that they were going to teach the students. Some people in the management group may resist *direct* efforts made to teach them economic facts, but they may be quite receptive to the *indirect* approach outlined above.

As well as helping to further *management* interest in and knowledge of economics, the socio-economic plant tour can be a useful tool in spreading economic understanding among *employees.* When the display materials were being set up in the plant, the workers became curious about the program. Thus indirectly the supervisors could "interpret" to a receptive group. It would be interesting to test the effect of a regular socio-economic plant tour upon an employee group.

Contrary to the fears of many people, there was no hint of "propaganda" in the project. Questionnaires were unsigned and provided ample opportunity for any student to express his candid opinion, but there were no remarks regarding propaganda. In fact, the students indicated that they had enjoyed the whole project immensely. The tours were set up to explain plain business facts to the students, and no attempt was made to say, "This is right!" and "That is wrong!" The simple economic facts were allowed to speak for themselves and were left to the students for interpretation.

There seemed to be a real lack of knowledge concerning business in our secondary schools. The educational system seems to have isolated itself from the business world. Part of the fault lies with business, which has not always been prudent. Large budgets for school aids may have been thrown into wastebaskets because of too much advertising and too much bias, which left too little fact and too little teaching value. Our educational system is guarded by people with a keen sense of respon-

sibility, but little realization that an understanding of our private enterprise system is a basic requirement for any student whether he goes on to work or to college.

The students have indicated decisively that they are eager to find out more about business and are willing to do it in their own time if it is necessary. Industry has shown that it is willing to co-operate by opening its plants and operations to the students if this will assist in clearing up economic misunderstanding. Schools of business administration could perform a worthwhile function by acting as liasons between the industrial and educational systems. They are in a position to understand the students as well as business management, and they understand the school authorities' fear of propaganda. They are ideally situated to provide overall control and co-ordination for any program between industry and the educational system and could discharge this responsibility with an unprejudiced viewpoint.

Not only educators, but also members of the business community are interested in the welfare of the student. In the future, students will be casting ballots that may decide not only the economic, but also the political climate in which business must operate. A vast majority of these students will become employees. Economic education is necessary to understand the operation of the business system in which these students will work for a greater part of their lives. That economic understanding can be realized if businessmen and educators would co-operate in the use of the socio-economic plant tour.

A Practical Application of Statistical Quality Control

J. C. Knapp
Superintendent of Quality Control
Ford Motor Company of Canada, Limited

On March 14th, 1951, the School of Business Administration, University of Western Ontario, conducted a special meeting on statistical quality control under the auspices of the Toronto Society for Quality Control for interested persons in the Western Ontario area. Mr. J. C. Knapp, Superintendent of Quality Control, Ford Motor Company of Canada, Limited, addressed the group. Excerpts from Mr. Knapp's talk are recorded in this article.

IN THE IMMEDIATE post-war years, the customer wanted value, and value is quality divided by cost. However, we have now entered a period of severe material shortages which more than ever have increased the importance of high quality production. All of us have an obligation to our country and to our customers to produce with the barest minimum of scrap and rework. Quality control techniques will help up achieve this goal.

Regardless of how efficient an inspection department you may have, it can only *maintain* the quality of material leaving your plant. It remains for production to *build* the quality into the product. How often have you heard the statement, "I don't see how that could have happened. We have 100% inspection on that job." There is 100% inspection because the job wasn't right in the first place. Now how efficient *is* this 100% inspection? You might be surprised if you were to have material that has already been subjected to 100% inspection reinspected two or three time and if additional defective units were found.

While inspection merely insures the maintenance of present quality standards to the extent that it is efficient, the technique of quality control guarantees *improved* products. A brief statement of the history of this procedure, its purpose, its fundamental principles, and a few practical applications will do much towards contributing to a general understanding of the principles upon which it is based.

History

In 1924, when Bell Telephone was introducing the automatic dial telephone, it had a large number of intricate parts to be made to very close tolerances. The problem of devising a new method of producing

high quality with quantity was given to Dr. Shewhart of Bell Telephone Laboratories, who originated the method being universally adopted today. However, it remained for the United States Armed Services to provide the necessary impetus, during World War II, to reduce the technique to a language that practical men in a plant could understand. As a result of the widespread interest that followed, a professional organization, the American Society for Quality Control, was founded in 1946. Today this association has forty individual sections and a paid-up membership of over 4,000 members. There are two Canadian sections, one in Montreal and one in Toronto.

Purpose

Quality control by statistical methods deals not only with quality today and tomorrow, but also with that in months and even years from now. Quality cannot be inspected into a product; it has to be built into it. The fire department once operated on the basis of waiting for a fire to break out and then quenching it as quickly as possible. Modern fire department practice, however, includes fire prevention work—a continuing search for things which cause fires and the elimination of such hazards before flames burst forth. This same preventive principle is the very heart of quality control technique.

A common complaint among production personnel is that engineers responsible for specifications do not always understand production problems. Inspection personnel often complain not only about the poor quality of manufactured products, but also about the unreasonableness of specified tolerances. In many organizations there is evident need for a basis on which designers, production personnel, and inspectors can understand each other's problems. In the past, many arguments between these three groups have been carried on with more heat than light because of the absence of facts in a form which would provide a basis for discussion. Quality control methods provide a common language which may be used by all three groups in arriving at a rational solution of mutual problems.

Principle

Quality control by statistical methods is essentially the control of the variability in the manufactured product at an economical level. As an illustration of variation, let us consider differences in the height of men. It is doubtful whether any two men in a given group would be *exactly* the same height. Three years ago, Ford conducted a quality control course for members of the inspection department. The subject of one of the classes was a study of the variation in the heights of all members. There were 160 men in the class, and the majority were around 5' 9" tall, with a variation from 5' 3" to 6' 3". Now this is a variation which is

expected in everyday life and considered to be normal. However, if one of the men had been 7' 4", you would wonder what made him so tall. You would probably ask yourself if he had some glandular trouble or if he had inherited this unusual height. You would seek the assignable cause. There might be some reason why men vary from 5' 3" to 6' 3", but we are not concerned with these expected variations. We call those variations which we expect "chance causes". This same thought applies to work coming off a machine. As long as the pieces fit the pattern set up by the machine itself, we are not too concerned. A machine sets its own pattern, and once that has been established, we can change it only by making a definite change in the process itself.

The variables encountered in a manufacturing process may be attributed to any one or more of five classifications which are commonly called the "five M's":

(1) *MATERIALS*: Materials vary in physical composition (amount of stock to be removed, porosity, machineability, etc.). Likewise, variations in the finished parts affect assembly operations.

(2) *MACHINES*: Even new equipment is not always capable of meeting specifications, and variability may be expected to increase from wear.

(3) *MEASUREMENT*: The operator produces quality. The inspector can maintain quality only by rejections. It is accordingly only fair to provide the operator with as good measuring equipment as that which the inspector has at his disposal. It is practically impossible to make two things exactly alike. The most skilled craftsman may think he can do it, but by using fine enough measurement, you can show that there is a difference. In all our applications of quality control, we insist that the method of measurement has a minimum instrumentation of 10% of the print tolerance.

(4) *MANUFACTURING CONDITIONS*: These include good housekeeping, illumination, temperature, etc.

(5) *MEN*: Men vary in ability, initiative, and the desire to do a good job. This is a subject for discussion in itself, and can merely be mentioned here as one of the variables encountered in a manufacturing operation.

Quality Control Organization at Ford of Canada

The Quality Control Sub-Division at Ford of Canada is under the direction of the General Superintendent of Quality Control, who reports directly to the Vice President, Manufacturing. It is divided into two sections, the Laboratory and the Statistical Quality Control Department.

The Chief Inspector of each building is responsible to the General Superintendent of Production for that particular building. The Quality Control Sub-Division develops the statistical procedures which are later implemented by the various inspection departments. It is also free to provide unbiased factual studies and reports pertaining to quality standards on both production and vendor material as requested by other Sub-Divisions in the Manufacturing Division.

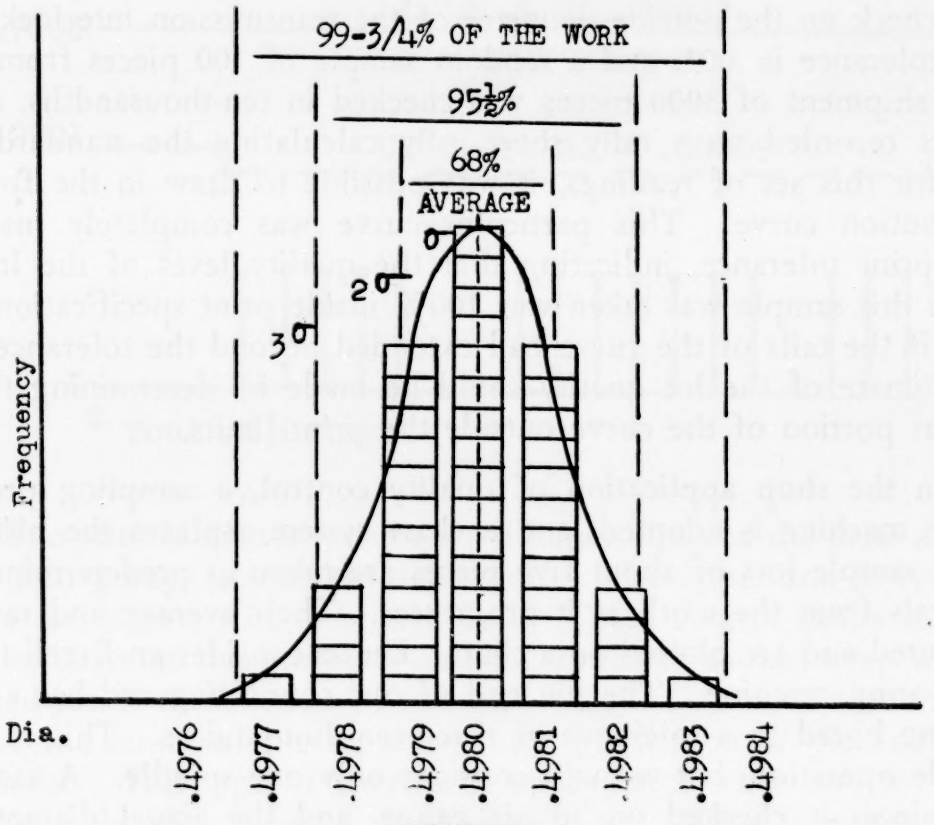

FIGURE 1

Practical Applications

Some of the manufacturing operations in our Windsor plants will illustrate the basic principles of quality control, but first let us consider a hypothetical analysis of the indicating gauge readings of the outside diameter of a lot of fifty ground steel pins which shows that they vary from .4977 inches to .4983 inches. If the pins are stacked in columns according to their actual diameters, they will form what is known as a histogram. When a frequency distribution curve is drawn in (see Figure 1), a bell-shaped or normal pattern may be noted. With such a pattern, the base of the curve may be divided into six mathematically equal zones. The width of each of these zones is called the "standard deviation" and is identified by the Greek lower-case letter "sigma" (σ). The standard deviation is the measure of variation about the mathematical average. It will be noted in Figure 1 that 99¾% of the work will fall

within the six zones, or within plus and minus three standard deviations of the average.

It is not economically practicable to have a process so thorough that there is no marginal work. The three sigma limits embrace 99¾% of the work and are generally used on process control charts as the "upper and lower control limits".

Let us now consider a practical application by studying the results of a check on the outside diameter of the transmission interlock sleeve. The tolerance is .001, and a random sample of 100 pieces from a vendor's shipment of 3000 pieces was checked in ten-thousandths, and the results recorded on a tally sheet. By calculating the standard deviation for this set of readings, it was possible to draw in the frequency distribution curve. This particular curve was completely inside the blue print tolerance, indicating that the quality level of the lot from which this sample was taken was 100% inside print specification. However, if the tails of the curve had extended beyond the tolerance limits, an estimate of the lot quality could be made by determining the area of that portion of the curve outside the print limits.

In the shop application of quality control, a sampling procedure at the machine is adopted, and a chart system replaces the histogram. Small sample lots of about five pieces are taken at predetermined time intervals from the work as it progresses. Their average and range are computed and are plotted on a chart. Let us consider an Excello double end boring machine. The pin end of our connecting rod has a bronze bushing bored to a tolerance of three ten-thousandths. This is a four-spindle operation, but we will consider only one spindle. A sample of five pieces is checked on an air gauge, and the actual diameters are recorded in hundred-thousandths. These are added and divided by five to obtain the average diameter of the five pieces. The maximum and minimum values are then noted. The difference between these values is the range and is actually the spread in size of each sample group of five pieces. This check of a sample of five pieces is repeated at twenty-minute intervals throughout the shift. From the group of twenty sample lots, the grand average and average of the ranges are determined. These data, when used with predetermined formulae, establish upper and lower control limits applicable to this particular group of sample lots.

The actual average and the range readings are plotted on a chart (See Figure 2). The average values of each sample of five pieces plotted indicates the trend of the process and is of special interest to the operator, while the range chart should be particularly watched by the production foreman and tool setter.

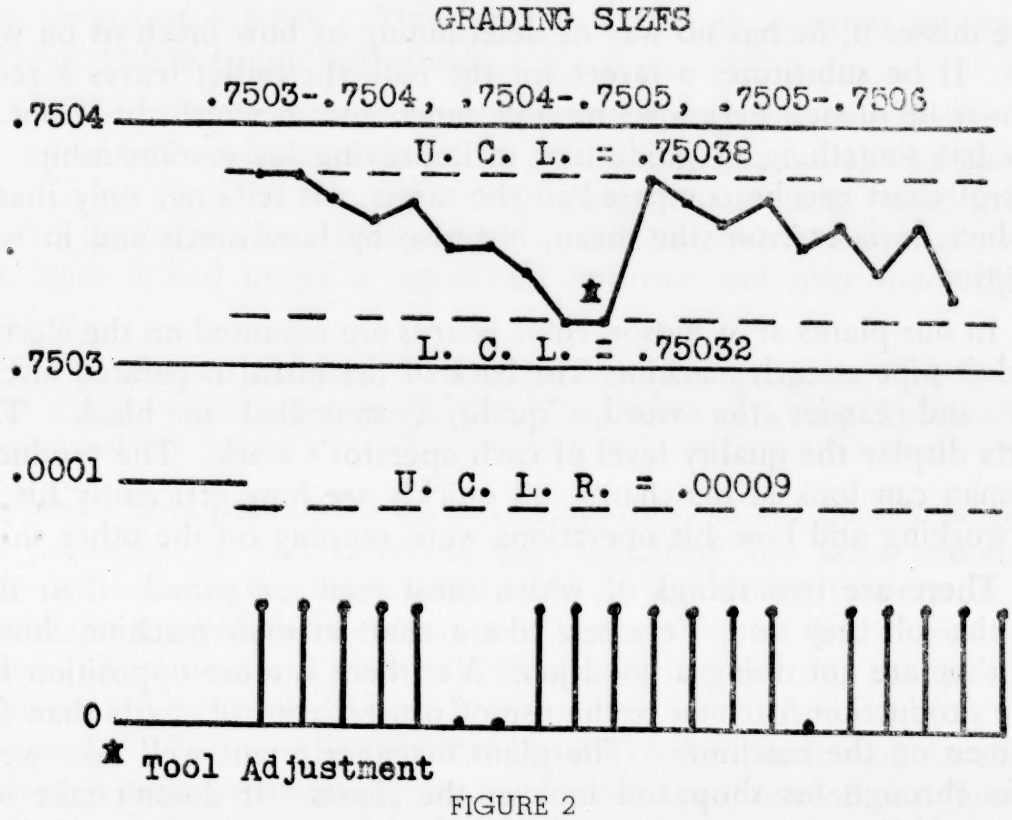

FIGURE 2

The print tolerance is three ten-thousandths, and the parts are sorted later into groups of one ten-thousandth. The upper and lower control limits are shown with a broken line. These control limits are drawn on the chart at the machine, and the operator should keep all points plotted inside these limits. Note that a tool adjustment was made after taking the tenth sample to prevent the production of pieces that were undersize. This type of chart tells an operator when and to what extent to make tool changes, dress wheels, etc. When a point is beyond the control limits, corrective action should be taken immediately.

If an operation has been correctly engineered for tolerances and gauging methods, it is possible to establish "standard values" of the averages and ranges. This necessitates taking a sufficient number of readings over an adequate time interval. The control limits so computed then provide a basis for future action. When a "process control chart" having control limits based on standard values is placed at a machine, the operator should be expected to maintain his work within those control limits. Any "out-of-control" points demand investigation and corrective action by the production foreman, and the work produced during that period should be withdrawn and screened.

One of the reasons why statistical quality control will help production may be illustrated by an analogy. Let us imagine that a rifleman is firing at a small ball suspended by a thread. He either hits it or misses it. It he hits it, he has accomplished what he set out to do, but

if he misses it, he has no way of determining by how much or on which side. If he substitutes a target for the ball, the bullet leaves a record. Even if he misses, he knows by how much and in which direction. He now has something to guide him in improving his markmanship. The control chart can be compared to the target. It tells not only that the product deviates from the mean, but also by how much and in which direction.

In our plants at Windsor, chart boards are mounted on the electrical conduit pipe at each machine. The back of the board is painted machine grey and carries the word, "quality", stencilled in black. These charts display the quality level of each operator's work. The production foreman can look at his charts and quickly see how efficiently his men are working and how his operations were running on the other shifts.

There are two things of which most men are proud—their name and the job they do. Very few like a chart at their machine showing that they are not doing a good job. Yet there is more opposition from some production foremen to the use of process control charts than from the men on the machines. The plant manager might well take weekly walks through his shop and look at the charts. It doesn't take long, because if the charts are big enough, he can see them from the aisles. The men are proud to have him personally see their charts, and all production foremen know that if they have a job out of control during the manager's visit this week, it had better not be that way on his next trip around.

Ford valves are extruded from slugs which are sheared from 12' to 14' bars 1-1/8" in diameter. After extruding, the valve stem is rolled in a straightening operation. The stem is sheared to length, with scrap pieces resulting. These cut-offs showed considerable variation in length and seemed to be excessively long because of a variation in slug weight. A quality control analysis on the bar stock as received showed 5% to 15% defective on diameter and out-of-round. Charts were made and sent to the source in an endeavour to correct this condition.

It was then decided to set up a chart to check slug weight right at the press where the slugs were sheared from the bar stock. It was first necessary to replace the ounce scale being used with a gram scale. A process control chart was prepared for the job and turned over to the inspection department.

There was improvement in the reduction of the average range from 5.2 grams in May to 2.6 grams the following January. The reduction in the variation in slug weight resulted in a reduction in length of the stem cut-offs. A high alloy steel is used, and if the stem cut-offs were held to the improved length, there would be a daily saving of $60 or a

yearly saving of $16,000. This represents enough material to supply valves for 15,876 engine assemblies.

A still further improvement in controlled slug weight was effected with the adoption of a 7/8" bar to replace the original 1-1/8" diameter stock. Using the 7/8" bar, the average range was reduced to .95 grams from 2.6 grams on the 1-1/8", which at one time we had thought very good, since it had meant a significant improvement over the original 5.2 grams.

The production foreman worked hard on this program. The quality control charts, while not a magic wand, *did* serve as a map for both the foreman and his men.

These charts provided a factual comparison of the quality level of work produced by two different men operating the same centerless grinder on consecutive shifts. Only 6% of the work of one man did not conform to operational tolerance as against 70% of that of the other operator. This variation made it difficult for the men on the finishing operations. His work would have been running 0% had he worked closer to the mean. This can be of great benefit to the production foreman. However, it works *both* ways. A few months ago, one of our foremen called a group of men to his desk and began to reprimand them for inferior workmanship. One of the men walked over to his machine and returned with his chart saying, "You can't accuse me of poor work; look at this chart." The foreman was embarrassed because he hadn't made full use of the information that the chart provided.

It is possible not only to determine the quality capability of a machine but also to compare two different machines. In one case, a centerless grinder No. 7475 was running 32% non-conforming work, while another machine, No. 7313, with the same operator, produced parts running in satisfactory control and 0% defective. Grinder No. 7475 was eventually taken out by the machine repair department for an overhaul and replaced by grinder No. 7911. It had an even lower average range than No. 7313.

While machine repair effected some improvement in centerless grinder No. 7475, the average range was still .0018 as against .0008 and .0007 for the other two grinders respectively. The machine repair foreman argued that they had done a good overhaul job, but had no answer when asked why he didn't leave the spare grinder No. 7911 in the department and keep No. 7475 after overhauling for his own spare.

In addition to improving the quality of material manufactured in your plant, it is necessary to establish and maintain a satisfactory quality level on material purchased elsewhere. In many cases, it is neither desirable nor economically practicable to have 100% inspection. Research

has shown that on the average, 100% inspection is only about 85% effective; that is, 15% of the defectives in the lot will get through.

The use of scientific sampling inspection plans will provide the greatest protection on incoming material with a minimum cost. The sampling tables used are prepared by statisticians using the same laws of probability as those adopted by insurance companies. Before giving you a policy, an insurance salesman will first determine what risk you are to his company. Similarly, before using a sampling plan, the known risks involved are determined. What has the process average (per cent defective) been for the previous ten shipments of that part from that particular vendor; what size are the shipments; and what quality level are you prepared to accept?

There are different types of acceptance sampling inspection plans, but the "Military Standard Sampling Procedures and Tables for Inspection by Attributes" (MIL-STD-105A) are gaining universal acceptance. These are the tables officially approved by the United States Armed Services. Details on sampling inspection may well be omitted in this discussion because the main problem is to get the parts right when they are first produced, not sort them out afterwards. The ideal result of the technique would be the inclusion of a certification with the vendor's shipment showing the quality level of the material as it was produced.

In addition to the practical examples already discussed, some study of engineered assembly tolerances should prove interesting.

Let us consider the Mercury rear axle assembly and, in particular, the axle shaft end play. The engineer has to set his tolerances so that the component parts can be produced economically and, when assembled, will work satisfactorily. If we were to look at a sectional view of the rear axle housing and bearing assembly, we would see that the inner race of the bearing is a press fit on the axle shaft, while the outer race is free to creep inside the housing. Two gaskets, the brake backing plate, and the depth of the counterbore in the axle housing when assembled together provide the space for the outer race of the bearing.

You will recall that a basic principle of quality control technique is that all things vary, and this variation follows a definite pattern known as the frequency distribution curve. The frequency distribution curves are representative of the normal curves of a controlled process for each of the axle components. The resulting distribution of these assembled components will also produce a normal curve along with the frequency distribution curve for the width of the bearing outer race. The distribution of the fit of the bearing in the axle assembly also results in a normal curve. This analysis is based on the fact that "the standard deviation of the sum of any number of independent variables is the

square root of the sum of the squares of the standard deviations of the independent variables".

The fit obtained by stacking tolerances in the conventional manner is .020 loose to .0088 tight. Now compare this with the engineered assembly tolerance of .014 loose and .0023 tight. However, a zero fit occurs only 1 out of every 78 times, and a .002 tight fit only 1 out of every 500 times. The .008 tight fit appears only 1 out of every 357,000 times. If the shop produces the component parts in a controlled process, wider, more intelligent, and more economical tolerances may be determined by the engineer. Quality control charts provide data on production operations that eliminates opinions and establishes factual evidence for intelligent decisions by engineering and production.

The carpenter shop made a demonstration set-up to illustrate a practical application of these principles. The axle components (two gaskets, brake backing plate, depth of counterbore in the housing, and the bearing) are represented by blocks of five different colours. There is a set of blocks of each colour which vary in height in accordance with the normal distribution. There are fifty blocks in each set, and the component parts and corresponding colours are as follows:

Part	*Colour*
Gasket	black
Brake backing plate	orange
Gasket	yellow
Depth of counterbore in axle	red
Bearing width	blue

These blocks were made with a tolerance scale of 100 to 1; that is, one-tenth of an inch represents one-thousandth of an inch.

Let us consider the conventional method of stacking tolerances. Take the four longest blocks of the axle components and stack them against a vertical board. Mark their height. Now place the shortest bearing block beside this stack. The difference in height is 2.0 inches for an end play of .020 loose. This procedure can be reversed by measuring the height of the four shortest blocks of the axle components and by placing the longest bearing block beside this stack. The difference in height is .88 inches for an end play fit of .0088 tight.

The vertical board has now two horizontal red lines representing the print assembly limits obtained by stacking tolerances of the individual axle component parts. Two broken horizontal blue lines may represent the upper and lower control limits for random assembly. This means that only 3 times out of 1,000 will the random assembly of axle component parts extend beyond these control limits. If we return the long and short blocks to their respective piles and select blocks in

a random manner to determine the resulting axle end play fits, the result would confirm the theory just presented. The engineer could have precluded the possibility of a tight fit of the bearing in this example by increasing the depth of the counterbore in the housing sufficiently so that the two distribution curves would not overlap.

This treatment of engineered assembly tolerances is something that will bear watching and which is not too far away in the future. However, such a program requires the co-operation of production and engineering men. The great advantages to be gained from such efforts are as follows:

(1) Tolerances on individual parts can be increased.
(2) Inspection and production costs can be reduced to a minimum.
(3) An intelligent analysis can be made for salvaging non-conforming material.
(4) A controlled process produces easier and cheaper assembly, less repair and warranty on the finished product, and more satisfied customers.

Economic tolerances cannot be obtained by copying year after year from previous drawings nor taken from a set of tables by a detail draftsman. They can be set only by the engineer when he knows the capabilities of each piece of equipment in the shop as shown on the quality control charts. This is a long range program, and progressive companies in the future will, no doubt, apply control charts not only to processes giving trouble, but also to all other operations.

There are plants in the United States and Canada today that have instituted the following policies and stand behind them:

(1) Every piece of new equipment has to have a quality control capability analysis showing that it meets the required qualiy standard before it is accepted. This has been in effect in our company, at the request of the General Superintendent of Machine Shops, for the past year. The factual information thus provided has assisted our Production Engineering Department in providing only quality-producing equipment to the production foreman.
(2) Maintenance and overhaul of machines is carried out only after quality control charts show that it is necessary. Similarly, the equipment is not accepted again by the production foreman until control charts indicate that the repair work has been done satisfactorily.
(3) No operation is time-studied until it is shown by a quality control chart that it is producing to the desired quality standard. Even then, a control chart is run simultaneously

with the time study and kept for future reference. What is the advantage to the company and the operator in setting a work standard on an operation that is out of control?

Conclusion

It seems evident that the management of any company saying, "Can we afford to try quality control?" *should* be saying, "Can we afford *not* to try quality control?" However, if they do not intend to take corrective action on the information and factual evidence presented by the quality control group, they are wasting their time, energy, and money in starting such a program. Every chart made should pay its own way.

The March 14th meeting attracted such widespread attention that a second meeting was conducted by the School of Business Administration on April 18th, 1951. The program was in the form of a panel discussion and took place under the auspices of the Toronto Society for Quality Control.

It was the consensus of those who attended the special meetings at the University that a formal organization of persons interested in quality control in Western Ontario should be established, and at a meeting held on May 16th, 1951, at John Labatt Limited, a Western Ontario Society for Quality Control was founded. On May 25th, 1951, the group was admitted into the membership of the American Society for Quality Control and it became known as the University of Western Ontario Section, American Society for Quality Control.

BOOK REVIEWS

THE HOUSE OF LABOR. Edited by J. B. S. Hardman and Maurice F. Neufeld and prepared under the auspices of the Inter-Union Institute, Inc. Prentice-Hall Inc., New York, 1951. 555 pp. $7.65.

This is a good book. Subtitled "Internal Operations of American Unions", it treats a little investigated aspect of our modern union movement—what goes on behind the scenes at union headquarters throughout the United States. Every person who reads this book should find some surprises—either in learning that unions are engaged in this or that activity, for the range of their intra-mural operations is vast and is continually growing, or in reading what some union men will say about themselves, for some have written frank indictments of themselves in this book.

The book is a collection of short articles written by experts on the internal operations of unions. The majority of the contributors are drawn from the ranks of union membership, primarily from those working in staff functions in the federations and international unions. Readers of this book will be interested in how the CIO-PAC and the AFL-LLPE work, as told by the heads of the two committees, Jack Kroll and Joseph Keenan. The labor press comes under close scrutiny in *The House of Labor.* The analyses of the content of union newspapers and magazines today by Henry C. Fleisher and Nora Piore are informative and, I think, fair; and Mrs. Piore's answer to the question—"the same stuff they talk about at union meetings"—is not only an interesting conclusion but also a challenge to unionist readers of this book. Union research, engineering efforts and organization, union welfare and community services, from the unsuccessful ventures in labour banking to co-operative housing to participation in red feather activities, and union educational activities involving the institutes, correspondence courses, fellowships, and educational films—all receive attention in some detail. The book includes an excellent section on general union administration, administration on both the national and local level, labor union accounting, financial problems, and legal problems.

The book is drawn together by some excellent appraisals and syntheses of groups of articles. Mr. Hardman's analyses of democracy and

assumptions of responsibility in unions today, particularly in his chapters entitled "State of the Movement" and "The Union Press -- An Evaluation", are especially thoughtful and well-written. Readers should also find interesting the article "Wanted: Responsibility and Initiative", by James B. Carey, president of the I.U.E.

A book of this type naturally has some "faults". Consistency of style is sacrificed. There are some duplications; contributors occasionally chose the same topic, i.e., a short historical background to introduce and warm up to their main theme, and such warm-ups lacked effectiveness and said little. All contributors did not write to the same readership. Most wrote to readers outside of the union hierarchy; a few, i.e., Morris S. Novik, in his article on union use of the radio, wrote to union leaders directly. General organization and arrangement of articles, however, is orderly and logical.

This book is certainly worthwhile. It is also something of a landmark. It is encouraging to find the unions co-operating in exposing their internal operations to view and analysis. May they accept such challenges henceforth, challenges thrown at them forcefully in *The House of Labor,* that even better books may be written about them.

—R. K. READY

PRACTICAL BANK CREDIT. By Prochnow and Foulke, 2nd ed. Prentice-Hall, Inc. New York, 1950. 712 pages. $10.00.

It is natural that one should approach a work such as *Practical Bank Credit,* written by the distinguished authors, Messrs. Prochnow and Foulke, with a large degree of deference and respect. This is more than justified as their story of credit unfolds. The earlier chapters in Parts I and II are somewhat of a routine nature, outlining the basis upon which credit judgment should be formed, while the latter chapters, dealing with financial statements (the barometers of business) and the actual granting of typical bank loans, are unusually clear and interesting. This work is certain to be of interest and value to all students of business economics and particularly to credit men. Needless to say, it is of even greater interest to bankers, young and old, because it shows in logical sequence the proper steps prior to the granting of a loan, analyzes the progress of a business through the examination of operating statements

and balance sheets, and finally describes the liquidation of the loan (including some worthwhile advice on the collection of "slow" accounts).

While the background of this work is in the American business field, there is a strong likeness to the Canadian economy since, fundamentally, the principles of credit are universal. As a text book containing illustrations of bank credit files, financial statements, and examples of loan applications, followed by questions at the end of each case, this work should provide an interesting study provocative of class discussion in university groups.

—A. T. HILLARY

MARKETING RESEARCH by Ernest S. Bradford. McGraw-Hill Book Co., New York, 1951. 379 pages.

This book fills an important need in marketing literature. While it is intended "for the use of students in the first course in marketing research and for others who are new to the work of analyzing markets", there is much here that will appeal to others with more experience.

The marketing research field is covered broadly, as in the sections on customer research and product analysis, but there are interesting chapters on research procedure and specialized research, such as advertising. Helpful appendices are included on statistical techniques and sampling and various surveys are presented in some detail.

To this reviewer, one of the most valuable aspects is the multiplicity of examples. These have been chosen with considerable care, and many of them are at least new to us. The references and source material should be useful to almost anyone but the most knowing. Summaries are provided for student assistance (a prop concerning which we have substantial reservations). The general presentation and typography are first-rate.

There are many points of emphasis that we have missed in other texts, and while this is not intended for skilled researchers, there will be few among them who will not gain something from Mr. Bradford's unusual acquaintanceship with the experience of specific businesses. For the novice, either as a text or as a reference, his book has much to commend it.

—EDWARD J. FOX

PRINCIPLES OF ECONOMICS, by Ralph H. Blodgett. Rinehart & Co., New York, 1951. 698 pp.

This work is the latest version of Professor Blodgett's *Principles of Economics*, originally published in 1941 and subsequently revised in 1946. A reveiw of the 1946 edition appeared in Vol. XIII, No. 1 of this Quarterly (pages 55-57).

The third edition differs from the second in that it contains a brief discussion of the national income and the Keynesian theory of interest, a new chapter on labour organization and industrial conflict, and material on the International Trade Organization and the International Monetary Fund. Additional charts and tables have been included, but chapter, "Economics in War and Peace", contained in the previous edition, has been deleted.

Throughout the latest revision Professor Blodgett has maintained that lucid style which made the earlier editions of his *Principles* a popular and effective textbook in the teaching of elementary economics.

—M. K. INMAN
Head of the Department
of Economics and Political Science.

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